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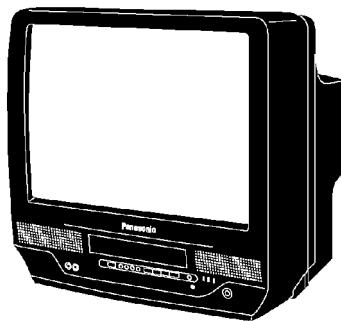
B3

# Service Manual

Combination VCR

Omnivision 

PVQ-1311 / PV-C1321 / PV-C1331W / VV-1301 / VV-1311W /  
PV-C1341 / PV-C1351W / PV-C2011 / PV-C2021 / PV-C2031W  
/ VV-2001 / PV-C2061



## SPECIFICATIONS

ITEM	SPECIFICATION	1	2	3	4	5	6	ITEM	SPECIFICATION	1	2	3	4	5	6
Video	Head: 2 rotary heads helical scanning system 4 rotary heads helical scanning system	oo	oo	-	-	o	-	VCR	Tape Speed	SP: 1-5/16 ips (33.35 mm/s), LP: 21/32 ips (16.67 mm/s), SLP: 7/16 ips (11.12 mm/s)	ooo	ooo	ooo	ooo	
	Input Level: VIDEO IN Jack (Phone type) 1.0 Vp-p 75 Ω unbalanced	ooo	ooo	ooo	ooo	ooo	ooo		Record/Playback Time: 8 hr with 160 min. type tape used in SLP mode FF/REW Time: Less than 2-1/2 min. (120 min. type tape)	ooo	ooo	ooo	ooo	ooo	
	Signal-to-Noise Ratio: SP: more than 43 dB LP/SLP: more than 41 dB	ooo	ooo	ooo	ooo	ooo	ooo	FM Radio	Tape Format	Tape width 12.7 mm (1/2 inch) high density tape	ooo	ooo	ooo	ooo	ooo
	Horizontal Resolution: Color/Monochrome: more: SP: 230 lines LP/SLP: 220 lines	ooo	ooo	ooo	ooo	ooo	ooo		Band Range	87.5 MHz-108.1 MHz	-oo	-oo	-oo	-oo	-oo
	Head: Normal Mono: 1 stationary head	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo	DISPLAY	Picture Tube	13 inch measured diagonal 90° deflection Picture Tube 20 inch measured diagonal 90° deflection Picture Tube	ooo	ooo	ooo	ooo	ooo
	Input Level: AUDIO IN Jack (Phone type) -10 dBv 50 Ω unbalanced	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo		Power	Source: 120 V AC±12 V AC, 60 Hz±3 Hz	ooo	ooo	ooo	ooo	ooo
VCR	Frequency Response: Normal Mono: SP: 100 Hz-8 kHz LP: 100 Hz-6 kHz SLP: 100 Hz-5 kHz	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo	Audio	Consumption:	Approx. 69 W (Power On), Approx. 4.0 W (Power Off) Approx. 110 W (Power On), Approx. 4.0 W (Power Off)	ooo	ooo	ooo	ooo	ooo
	Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB LP/SLP: more than 40 dB	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo		Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal	ooo	ooo	ooo	ooo	ooo
	Wow and Flutter: Normal Mono: SP: Less than 0.2 % WRMS LP: Less than 0.3 % WRMS SLP: Less than 0.4 % WRMS	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo	GENERAL	Operating Condition	5 °C-40 °C (41 °F-104 °F) (Temperature) 10 %-75 % (Humidity)	ooo	ooo	ooo	ooo	ooo
	Broadcast Channels: VHF 2-13, UHF 14-69 CABLE Channels: Midband A through I (14-22) Superband J through W (23-36) Hyperband AA-ECC (37-54) Lowband A-5-A-1 (95-99) Special CABLE channel 5A (01) Ultraband 65-94, 100-125	oooooo	oooooo	oooooo	oooooo	oooooo	oooooo		Dimension (W x H x D)	385 mm x 385 mm x 374 mm (15-3/16 inch x 15-3/16 inch x 14-3/4 inch) 515 mm x 505mm x 474 mm (20-5/16 inch x 19-7/8 inch x 18-11/16 inch)	ooo	ooo	ooo	ooo	ooo
									Weight	12 kg (26.4 lbs.) 23 kg (50.6 lbs.)	ooo	ooo	ooo	ooo	ooo

1. PVQ-1311/VV-1301/VV-1311W

2. PV-C1321/PV-C1331W

3. PV-C1341/PV-C1351W

4. PV-C2011/VV-2001

5. PV-C2021/PV-C2031W

6. PV-C2061

Weight and dimensions shown are approximate.  
Designs and specifications are subject to change without notice.

**Panasonic® /Quasar®**

## **1. SAFETY PRECAUTIONS**

### **GENERAL GUIDELINES**

#### **1. IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are marked by  $\triangle$  in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

- 2. An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.**
- 3. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
- 4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.**
- 5. Before turning the receiver on, measure the resistance between B+ line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have**

**more resistance than specified, as follows :  
(For model with 13 inch CRT)**

**B+ Line**

**Minimum Resistance**

**130.0 V**

**1 k  $\Omega$  (Cold chassis ground)**

**23.5 V**

**180  $\Omega$  (Cold chassis ground)**

**13.0 V**

**110  $\Omega$  (Cold chassis ground)**

**(For model with 20 inch CRT)**

**B+ Line**

**Minimum Resistance**

**130.0 V**

**1 k  $\Omega$  (Cold chassis ground)**

**21.5 V**

**180  $\Omega$  (Cold chassis ground)**

**15.9 V**

**110  $\Omega$  (Cold chassis ground)**

**6. When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.**

**7. Potentials, as high as 25.0 kV (For model with 13 inch CRT) or 30.0 kV (For model with 20 inch CRT) are present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the tube.**

**8. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

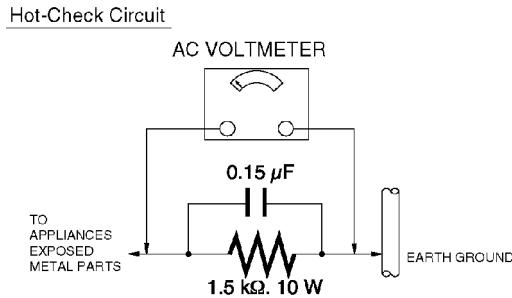
**LEAKAGE CURRENT COLD CHECK**

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. For physically operated power switches, turn power on. Otherwise skip step 2.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the reading should be between  $1\text{ M } \Omega$  and  $12\text{ M } \Omega$ . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

#### LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.  
Do not use a isolation transformer for this check.
2. Connect a  $1.5\text{ k } \Omega$ ,  $10\text{ W}$  resistor, in parallel with a  $0.15\text{ } \mu\text{ F}$  capacitor, between each exposed metallic part on the set and a good earth ground , as shown in Figure 1.
3. Use an AC voltmeter, with  $1\text{ k } \Omega/\text{V}$  or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed  $0.75\text{ V RMS}$ .  
A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed  $1/2\text{ mA}$ . In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

Figure 1



## 2. X-RADIATION

**WARNING :**

1. The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.
2. When using a picture tube test fixture for service, ensure that the fixture is capable of handling 25.0 kV (For model with 13 inch CRT) or 30.0 kV (For model with 20 inch CRT) without causing X-Radiation.

**NOTE :**

It is important to use an accurate periodically calibrated high voltage meter.

1. Reduce the brightness to minimum.
2. Set the SERVICE switch to SERVICE .
3. Measure the High Voltage. The meter reading should indicate  $23.5 \text{ kV} \pm 1.5 \text{ kV}$  (For model with 13 inch CRT) or  $28.5 \text{ kV} \pm 1.5 \text{ kV}$  (For model with 20 inch CRT).  
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. To prevent an X-Radiation possibly, it is essential to use the specified picture tube.

HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST

**SERVICE WARNING :**

The test must be made as a final check before set is returned to the customer.

1. With the rear cover removed, supply about a 90 V AC power source to the set, turn on the set.
2. Set the customer controls to normal operating positions.

- 3. Short between TP891 and TP892 on the Main circuit board with a jumper wire. Confirm that the picture goes out of horizontal sync.**
- 4. If this does not occur, the horizontal oscillator disable circuit is not operating. Follow the Repair Procedures of horizontal oscillator disable circuit before the set is returned to customer.**

#### REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

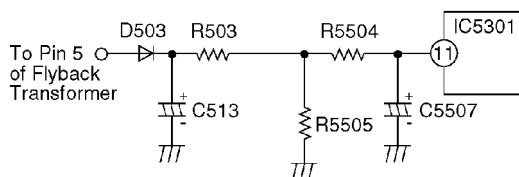
- 1. Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.**
- 2. If approximately +21.0 V (For model with 13 inch CRT) or +21.9 V (For model with 20 inch CRT) is not present at that point when 120 V AC is applied, find the cause. Check R503, R5505, C5507, C513 and D503.**
- 3. Carefully check above specified parts and related circuits and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.**

#### CIRCUIT EXPLANATION

##### HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5504. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx 3 V. If the high voltage at Flyback Tr Pin 5 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5504. Due to the increased voltage at IC5301 Pin11, the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture becomes dark in order to keep X-radiation under specification.

Figure 2



### 3. PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors are semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.  
**CAUTION:**  
Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

"NOTE to CATV system installer :

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

## 4. OPERATION GUIDE

### 5. SERVICE NOTES (PLEASE READ)

#### 5.1. SERVICE NOTES

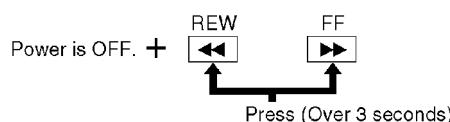
##### 5.1.1. SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit for fault code and communication for I<sub>2</sub>C bus code will be displayed on TV screen.

The Simplified Fault finding data is stored in the Memory IC (IC6004). This data is cleared after it is displayed, and then the POWER button is pressed back on.

**1. With power turned off, press FF and REW buttons on unit together for over 3 seconds.**

Fig. 1-1



**2. TV power goes on and the unit goes into service mode. 4 digit for fault code and communication for I<sub>2</sub>C bus code will be displayed.**

Fig. 1-2

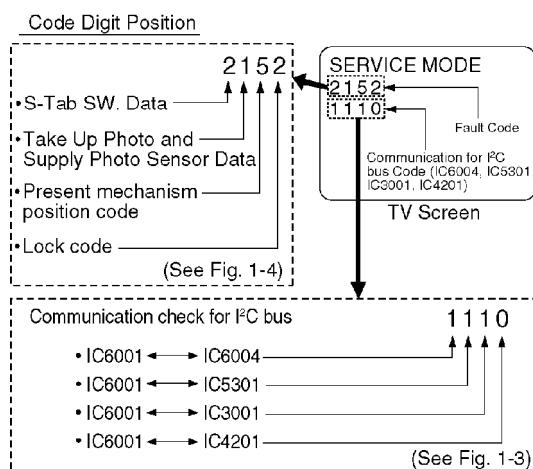


Fig. 1-3

(Communication check for I<sup>2</sup>C bus)

Explanation of Codes	Code No.			
Communication check for I <sup>2</sup> C bus (IC6001↔IC6004) ----- NG OK	0 1			
Communication check for I <sup>2</sup> C bus (IC6001↔IC5301) ----- NG OK	0 1			
Communication check for I <sup>2</sup> C bus (IC6001↔IC3001) ----- NG OK		0 1		
Communication check for I <sup>2</sup> C bus (IC6001↔IC4201) ----- NG OK			0 1	

**Note:**

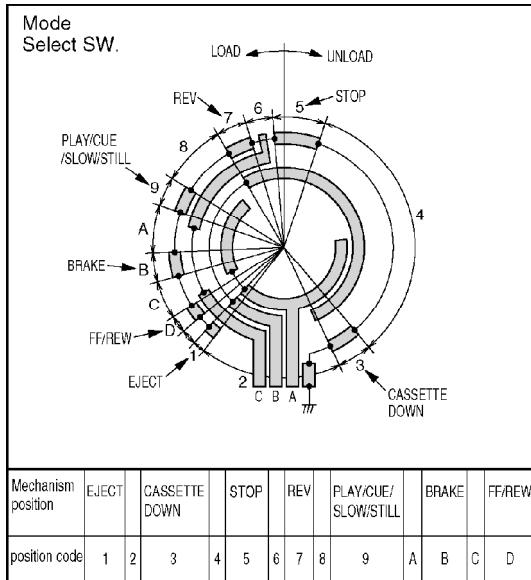
For Normal Audio models, 4th digit of code No. will not be displayed because IC4201 (Hi-Fi Audio IC) is not used.

Fig. 1-4

(Fault Code)

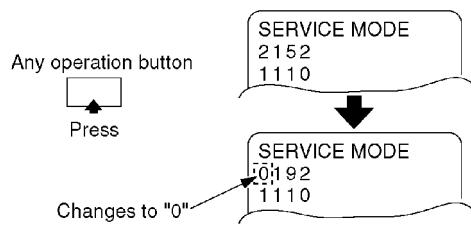
Explanation of Codes	Code No.			
<b>S-Tab SW. Data</b> • S-Tab SW. is off. • S-Tab SW. is on.	1 2			
<b>Take Up and Supply Photo Sensor Data</b> • No light detected at either sensor. • Take Up Photo Sensor detected at beginning of tape. • Supply Photo Sensor detected at end of tape. • Light detected at both sensors.	1 2 3 4			
<b>Present Mechanism Position Code</b>  Mechanism Position is indicated. (Refer to Fig. 1-5.)		1 2 3 4 5 6 7 8 9 A B C D		
<b>Lock Code (See Note)</b> • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			0 1 2 3 1 2 4 4	

Fig. 1-5



**3. Press any operation button except for POWER on either the unit, or the remote to detect that a key has been pressed.  
The 1st digit changes to "0" only when key is detected.**

Fig. 1-6



**Note:**

**When 1 to 4 listed in Lock code occurs, the VCR stops and all VCR function buttons except for power become non-operational.**

#### 5.1.2. USAGE SCREEN MODE

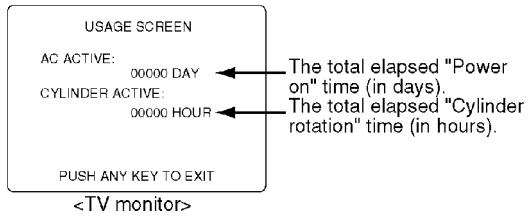
Function displayed on the TV monitor:

- the total elapsed "Power on" time (in days)
- the total elapsed "Cylinder rotation" time (in hours)

**1. With power turned on and no cassette, press STOP/EJECT button on unit and 7 key on remote together.**

**The USAGE SCREEN will be displayed on the TV Monitor.**

Fig. 1-7



Note:

- 1. After replacing the Cylinder Unit, press COUNTER RESET button on remote in this mode. Only Total elapsed "Cylinder rotation" time (in hours) will be cleared to 0.**
- 2. To release from Usage Screen Mode, press any operation button on unit or insert a cassette tape in this mode. The unit will return to normal operation mode.**

### 5.1.3. SERVICE POSITION

#### 5.1.3.1. Service Position

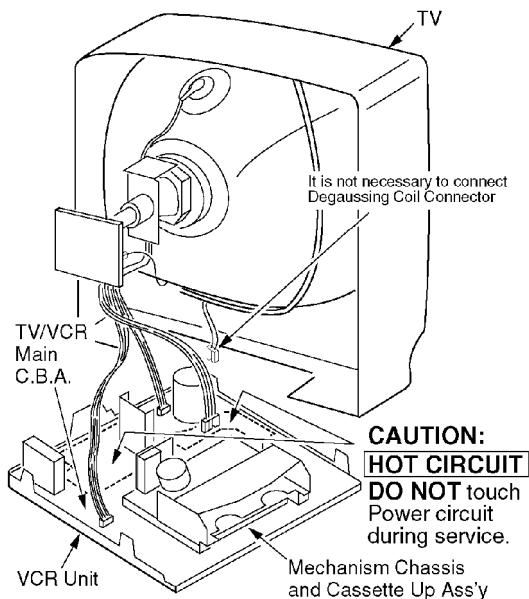
Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	TV/VCR Main C.B.A. check

**CAUTION:**

**HOT CIRCUIT (Primary circuit) exists on the TV/VCR Main C.B.A.  
Use extreme care to prevent accidental shock when servicing.**

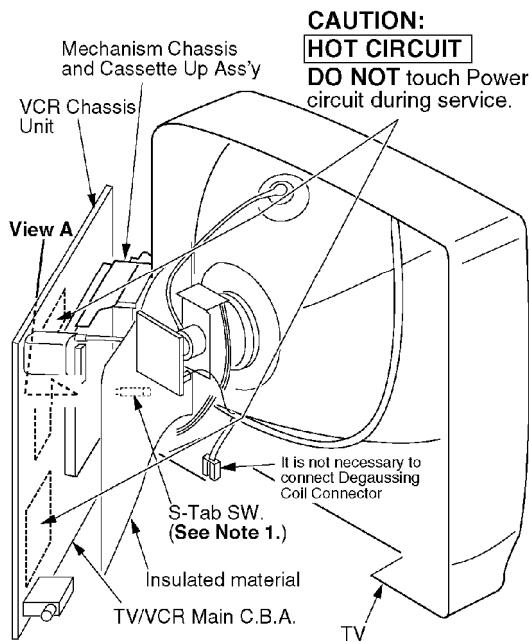
#### 5.1.3.2. Service Position (1)

Fig. 2-1



#### 5.1.3.3. Service Position (2)

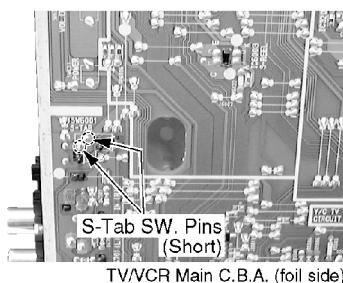
Fig. 2-2



Note:

- 1. It is possible that the S-Tab SW. may not work correctly in Service Position (2). (Recording can not be done). In this case, short the S-Tab SW. Pins on the foil side of the TV/VCR Main C.B.A. to turn this SW. on.**

Fig. 2-3



View A

Alternative method:  
Cover the S-Tab SW. with masking tape.

- 2. When disassembling/assembling, refer to "CABINET SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.**

#### 5.1.4. HOT CIRCUIT

Primary circuit exists on the TV/VCR Main C.B.A.

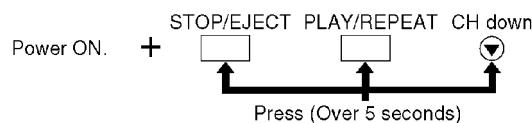
This circuit is identified as "HOT" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

#### 5.1.5. SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press and hold STOP/EJECT, PLAY/REPEAT, and CH down buttons on the unit together

over 5 seconds in power on condition.

**Fig. 3**



The unit goes into service mode.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, press POWER button off or disconnect AC Plug.

#### 5.1.6. DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the TV/VCR Main C.B.A. The tracking will be placed in the neutral position.

#### 5.1.7. CAUTION FOR INSTALLATION OF VCR UNIT

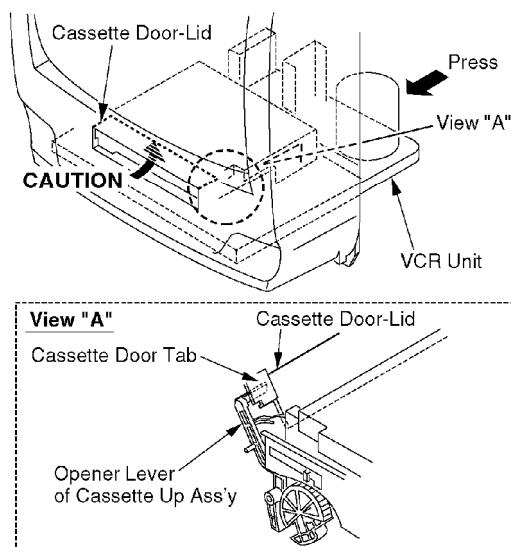
##### CAUTION:

**Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.**

Install the VCR Unit as follows:

1. Swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all guide tabs are aligned properly. Then, press the VCR Unit straight in.

**Fig. 4**

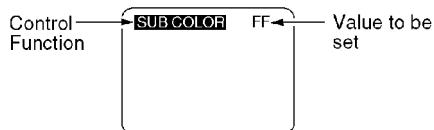


#### 5.1.8. HOW TO INITIALIZE MEMORY IC

After the Memory IC (IC6004) or TV/VCR Main C.B.A. is replaced, be sure to set the Default value to Memory IC as shown in "Memory IC Reference Table" below.

1. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.  
The adjustment overlay will appear to Enter EVR Adjustment mode.

Fig. 5-1

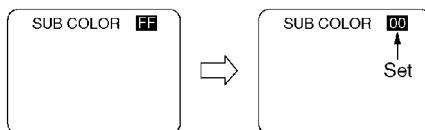


2. Set the Default value of all Control functions using a remote control as shown in "Memory IC Reference Table."

**Note:**

For Selecting Control functions and setting Default value, refer to "[How to enter EVR adjustment mode](#)" and "[HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE](#)" in ELECTRICAL ADJUSTMENT procedures.

Fig. 5-2



3. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF to release EVR Adjustment Mode.

The Default value will be written to Memory IC (IC6004).

4. Perform all EVR Adjustments. (Refer to "[EVR \(Electronic Variable Register\) ADJUSTMENT WITH THE REMOTE CONTROL](#)" in ELECTRICAL ADJUSTMENT procedures.)

**Memory IC Reference Table**

Control functions	Address	Range	Default
SUB COLOR	00	C0 - FF, 00 - 3F	00
SUB TINT	01	E0 - FF, 00 - 1F	00
SUB BRIGHT	02	C0 - FF, 00 - 3F	F0
CONTRAST	03	C1 - FF, 00	00
SUB SHARPNESS	04	E0 - FF, 00 - 1F	00
R CUT -OFF	05	00 - 7F	1E
G CUT -OFF	06	00 - FD	3C
B CUT -OFF	07	00 - FD	3C
G DRIVE	08	00 - 7F	40
B DRIVE	09	00 - 7F	40
SUB CONTRAST	0A	00 - 0F	06
H CENTER	0B	00 - 0F	08
SUB V	0C	00 - 03	00
V SIZE	0D	00 - 7F	40
V POSITION	0E	00 - 7F	40
ANR CTL	10	00 - EF	89
PICTURE CTL	11	00 - EF	86
VV COLOR	12	C0 - FF, 00 - 3F	00
VV TINT	13	E0 - FF, 00 - 1F	00
VV SHARPNESS	14	E0 - FF, 00 - 1F	F8
PG SHIFTER	15	01 - FD	80
FM ANT	18	00 - 01	00

**Note:**

1. Address is not displayed on the TV screen.  
Other Addresses except above are not used.

### 5.1.9. METHOD FOR LOADING/UNLOADING OF MECHANISM

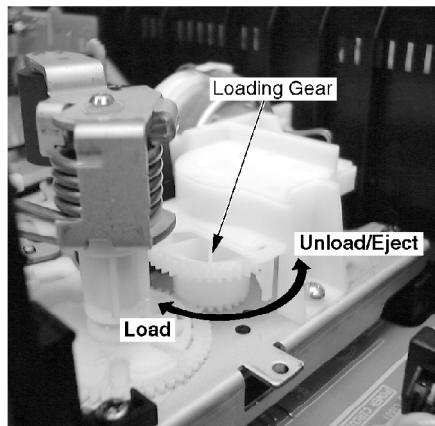
#### 5.1.9.1. (Manual Method)

Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.

**Note:**

**Do not use this method if Mechanism is jammed or locked.**

**Fig. 6-1**



#### 5.1.9.2. (Electrical Method)

Apply +10.0 V DC Power Supply to the Loading Motor terminals.

**Loading**

DC + to Portion "a," DC - to Portion "b"

**Unloading**

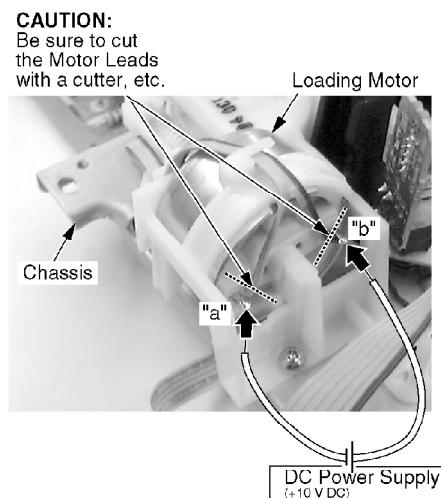
DC - to Portion "a," DC + to Portion "b"

**CAUTION:**

**Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.**

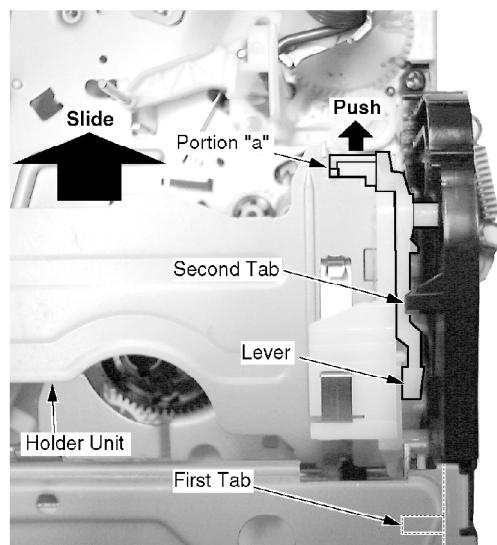
**Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.  
When reconnecting the Motor Leads, solder at below / 320 °C for less than 3 seconds.**

**Fig. 6-2**



**When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.**

**Fig. 6-3**



### **5.1.10. HOW TO REMOVE A JAMMED TAPE**

**CAUTION:**

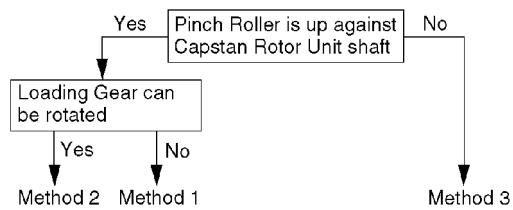
**Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.**

Remove a jammed tape as follows:

#### **5.1.10.1. Manual Method**

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

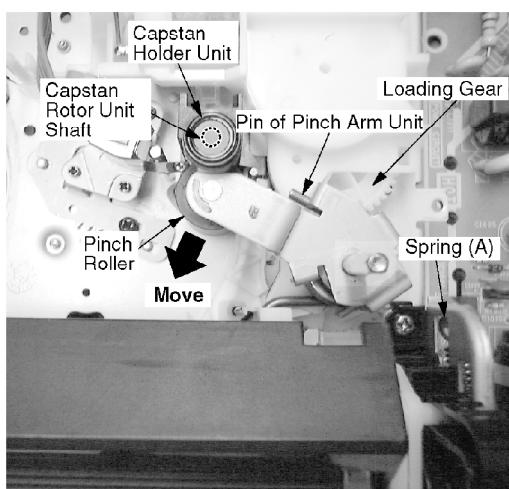
**Fig. 7-1**



**5.1.10.1.1. Method -1:**

- 1. Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.**

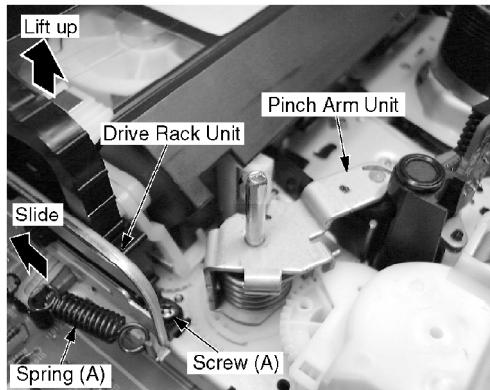
**Fig. 7-2**



Top View

- 2. Remove the tape from the tape path.**
- 3. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.**
- 4. Unhook Spring (A) of the Drive Rack Arm.**
- 5. Remove Screw (A).**
- 6. Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.**
- 7. Check the cause of mechanical trouble and repair.**

**Fig. 7-3**



**5.1.10.1.2. Method -2:**

**1. Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.**

**2. Perform Step 2 through Step 7 of Method -1.**

**5.1.10.1.3. Method -3:**

**1. Perform Step 2 through Step 7 of Method -1.**

**Note:**

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

**5.1.10.2. Electrical Method**

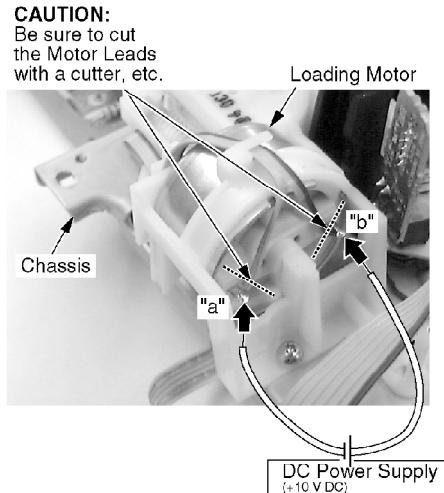
Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.

**CAUTION:**

- 1. Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.**  
Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.  
When reconnecting the Motor Leads, solder at below / 320 °C for less than 3 seconds.
- 2. If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."**
  - 1. Be sure to cut the Motor Leads with a cutter, etc.**
  - 2. Apply +10.0 V DC Power Supply to the Loading Motor terminals.**

**3. When the Loading Posts reach the fully unloaded position, remove the Power Supply.**

**Fig. 8**



**4. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.**

**5. Eject the cassette by applying +10.0 V DC Power Supply again.**

**5.1.11. WIRE AND LEAD POSITION DIAGRAM**

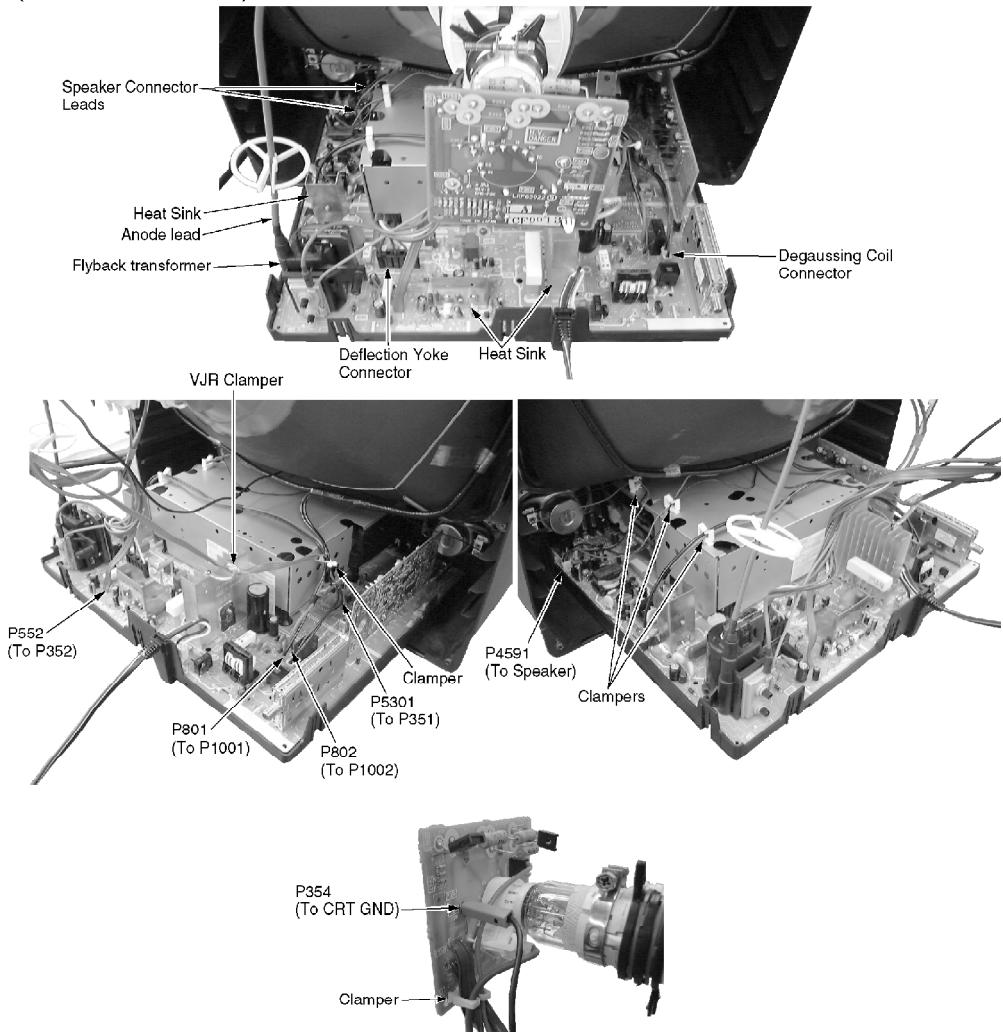
**Fig. 9**

After servicing, make sure that all wires, leads, and clamps are placed in their original position. It is important for the best operation of the unit.

**Note:**

No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.  
Use extreme care especially for followings.

(Model PV-C2061 is shown)



### 5.1.12. HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

### 5.1.13. BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

### 5.1.14. HOW TO RESET ALL COMBINATION VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, no cassette inserted), hold down the PLAY and FF buttons on the unit together for more than 5 seconds.

Power will shut off.

### 5.1.15. HOW TO CONFIRM AUTO CLOCK SET FEATURE

## 1. Connect an RF cable from the output of one unit to the input of the test unit.

- 2. Select corresponding RF channels.**
- 3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.**

#### **5.1.16. VARIABLE VOLTAGE ISOLATION TRANSFORMER**

An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.

Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

#### **5.1.17. SPECIAL NOTE**

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

#### **5.1.18. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS**

The following procedures are recommended for the replacement of the leadless components used in this unit.

##### **1. Preparation for replacement**

###### **A. Soldering Iron**

Use a pencil-type soldering iron that uses less than 30 watts.

###### **B. Solder**

Eutectic Solder (Tin 63 %, Lead 37 %) is recommended.

###### **C. Soldering time**

Do not apply heat for more than 4 seconds.

###### **D. Preheating**

Leadless capacitor must be preheated before installation. - (266 ° F ~ 302 °F)

(130 °C ~150 °C) for about 2 minutes.

**Note:**

**A. Leadless components must not be reused after removal.**

**B. Excessive mechanical stress and rubbing of the component electrode must be avoided.**

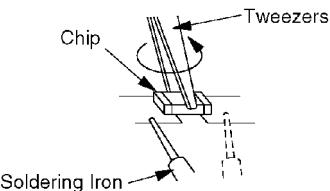
##### **2. Removing the leadless component**

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

**Note:**

- A. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.**
- B. Be careful not to break the copper foil on the printed circuit board.**

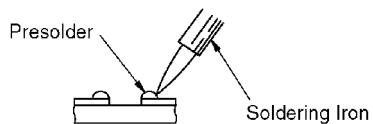
**Fig. 10-1**



### **3. Installing the leadless component**

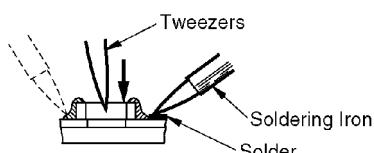
- A. Presolder the contact points on the circuit board.**

**Fig. 10-2**



- B. Press the part downward with tweezers and solder both electrodes as shown below.**

**Fig. 10-3**



**Note:**

**Do not glue the replacement leadless component to the circuit board.**

#### **5.1.19. MODEL NO. IDENTIFICATION MARK**

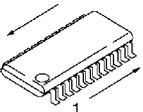
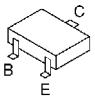
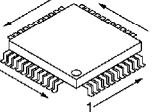
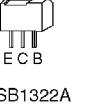
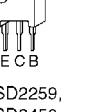
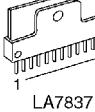
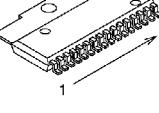
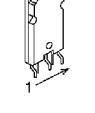
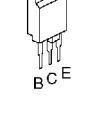
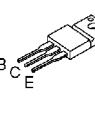
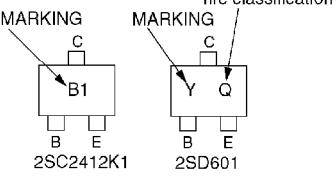
Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

**Note:**

Refer to Item 3 of Schematic Diagram Notes of  
Schematic Diagram and Circuit Board Layout Notes,  
for mark "Z."

## 5.2. IC, TRANSISTOR AND CHIP PART INFORMATION

<b>GENERAL C.B.A. / ASS'Y PARTS</b>																											
																											
2SA1321, 2SC945A, 2SA733, 2SA1767, 2SB1221, 2SC1684, 2SC1473, 2SC1473A, 2SC2482, 2SC2482KT, 2SC2785, 2SC4015, UPC4570G2-T1,	MN3885S, AN3846SC, CXA2064M, AN3371SB, AT24C01A10SI, LM833M, KS24C011IS, M24C01-MN6, BU4052BCF, CD4052BCM, BR24C01AFWE2, UPC4570G2-T1,	2SD601, 2SA1576A106R, 2SD601A, 2SA1037K146R, 2SC4081T106R, 2SB709A, 2SC2412K1, 2SD1819A, 2SD235800A, 2SB1218, 2SD2097TV2R																									
<b>TV/VCR MAIN C.B.A.</b>		<b>CRT C.B.A.</b>	<b>AUDIO C.B.A.</b>																								
 AN5368FB, AN3479FBP-A, AN5367FB, MN101D07HCA		 2SC3619  2SC3271F  2SC3063	 AN7420-NT																								
 XC61CC4702MR, RN5VS47CA-TR, PST3147-NR		 2SB1322A  2SD2259, 2SD2458, 2SD1858	 LA7837																								
 AN3808K		 STR30130  2SD2586LBK	 2SD1581																								
<b>HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.</b>		<b>HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.</b>																									
<table border="1"><thead><tr><th>MARKING</th><th>PART NO.</th><th>MARKING</th><th>PART NO.</th></tr></thead><tbody><tr><td>B</td><td>2SB709A</td><td>Y</td><td>2SD601</td></tr><tr><td>B</td><td>2SB1218A</td><td>Z</td><td>2SD1819A</td></tr><tr><td>B</td><td>2SC4081T106R</td><td>Z</td><td>2SD601A</td></tr><tr><td>F</td><td>2SA1037K146R</td><td>B1</td><td>2SC2412K1</td></tr><tr><td>F</td><td>2SA1576A106</td><td></td><td></td></tr></tbody></table>	MARKING	PART NO.	MARKING	PART NO.	B	2SB709A	Y	2SD601	B	2SB1218A	Z	2SD1819A	B	2SC4081T106R	Z	2SD601A	F	2SA1037K146R	B1	2SC2412K1	F	2SA1576A106					
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B	2SC4081T106R	Z	2SD601A																								
F	2SA1037K146R	B1	2SC2412K1																								
F	2SA1576A106																										
		<p>The widest color band must be read first for value.</p> <ol style="list-style-type: none"> <li><b>RESISTOR</b> There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts. 1) ERD10LLJ: Refer to above type. 2) ERD10TL: The narrow color band must be read first for value. If this part is included in the parts list, be sure that the color band is read properly when servicing.</li> <li><b>CAPACITOR</b> Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.</li> </ol> <p><b>CAUTION :</b> Once chip parts are removed, they must not be reused. Always use a new part when installing a chip part.</p>																									

## 6. DISASSEMBLY/ASSEMBLY PROCEDURES

### 6.1. CABINET SECTION

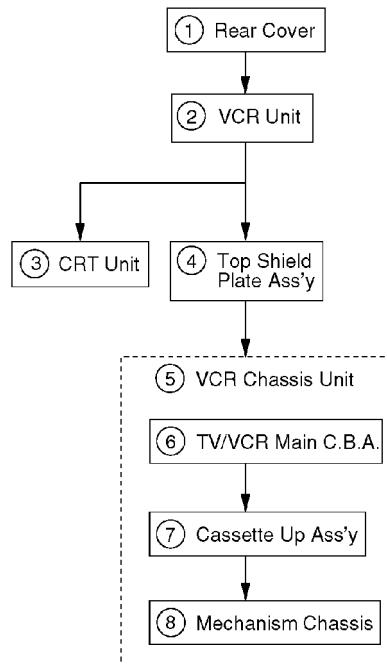
#### 6.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

**CAUTION:**

**Disconnect AC plug before disassembly.**

**Fig. D1**



### 6.1.2. Disassembly Method

STEP / LOC. No.	PART	Fig. No.	REMOVE	Note
①	Rear Cover	D2	6(S-1)	---
②	VCR Unit	D3 D4	Anode Cap, P354, CRT C.B.A., Deflection Yoke Connector, Degaussing Coil Connector, Clamps, P4591, 2 Tabs, 2 Guide Tabs	1
③	CRT Unit	D2	4(S-2)	2
④	Top Shield Plate Ass'y	D5	4(S-3), (S-4), (S-5), Grounding Wire	---
⑤	VCR Chassis Unit	D5	(S-6), 2(S-7), 2(S-8), 6(L-1), Grounding Plate	3
⑥	TV/VCR Main C.B.A.	D5	P3001, P6202, P6201, P4001	4
⑦	Cassette Up Ass'y	D5	2(S-9), (S-10), (P-1), (L-2)	5
⑧	Mechanism Chassis	D5	-----	---

A      B      C      D      E

**How to read chart shown above:**

**A: Order of Procedure steps.**

**When reassembling, perform steps(s) in reverse order.**

These numbers are also used as the identification (location) No. of parts in Figures.

B: Part to be removed or installed.

C: Fig. No. showing Procedure or Part Location.

D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

6(S-1) = 6 Screws (S-1), 6(L-1) = 6 Locking Tabs (L-1),

(P-1) = Spring (P-1)

E: Refer to "[Notes in chart.](#)"

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

Fig. D2

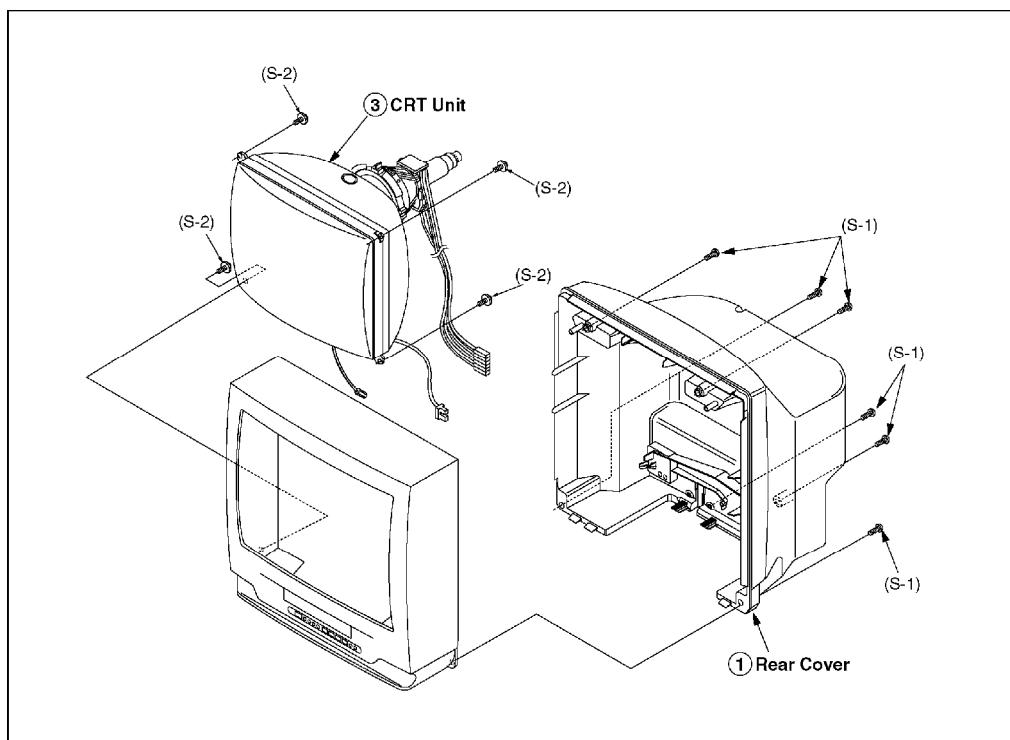
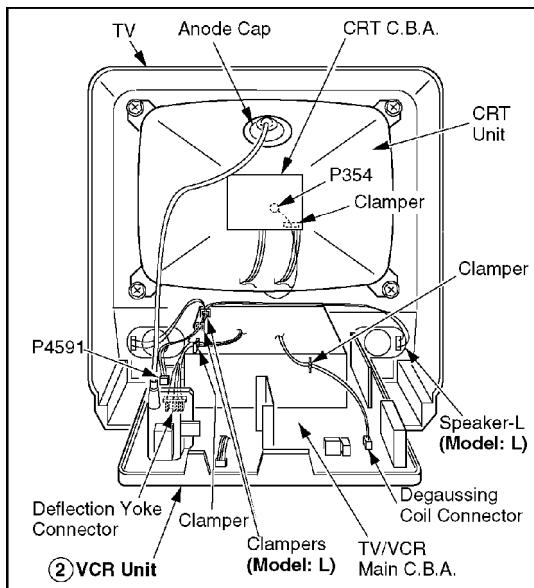
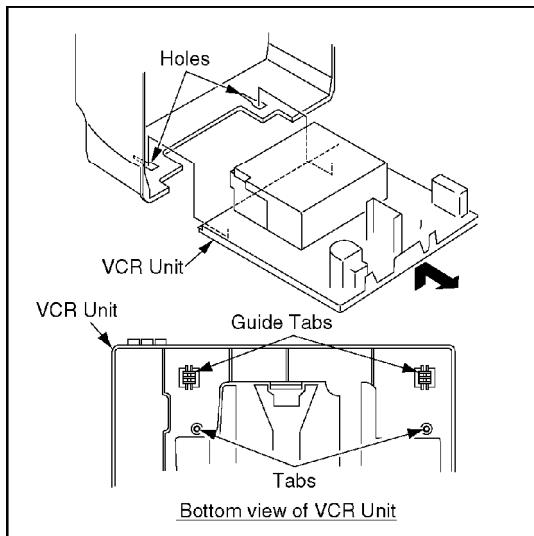


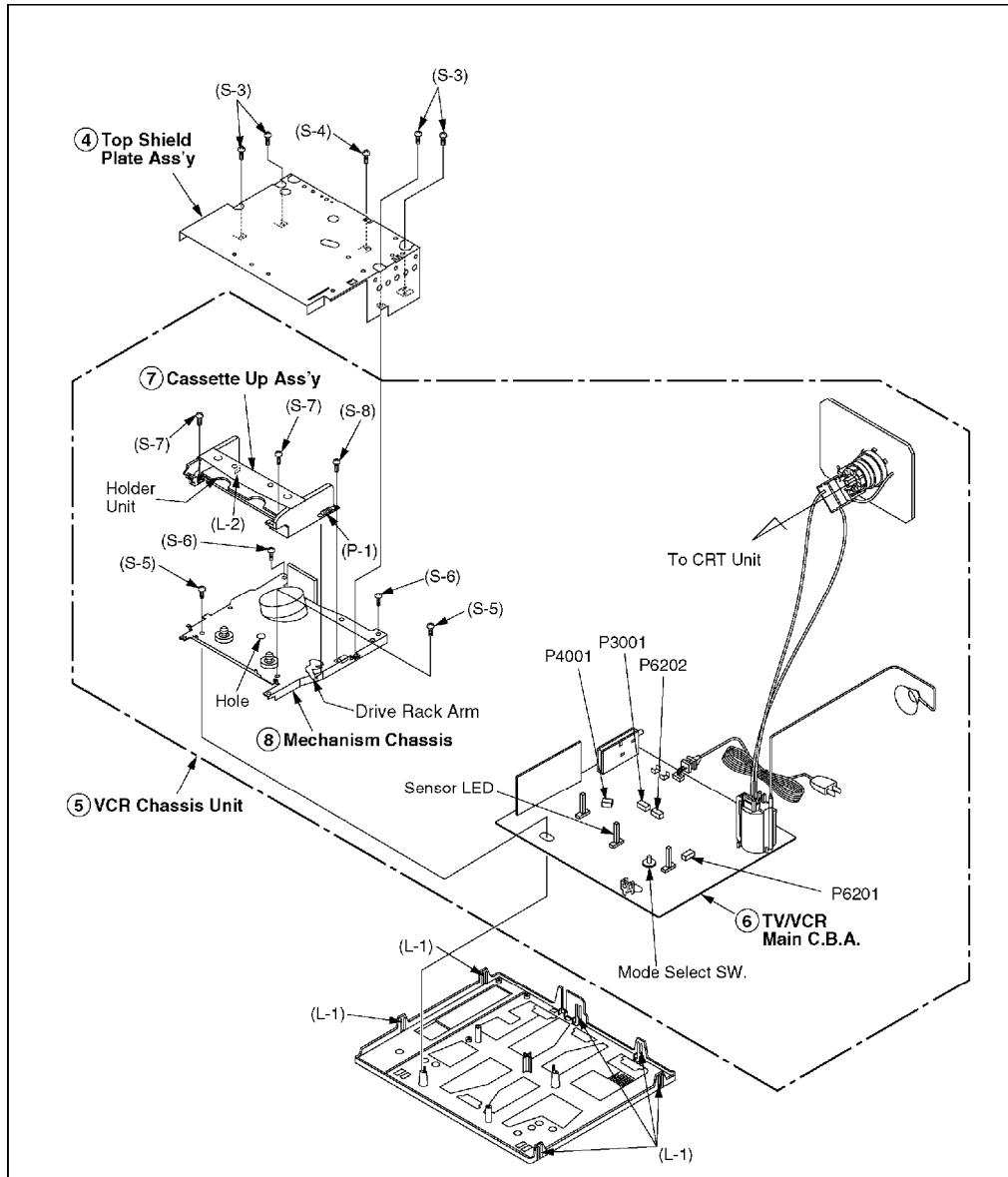
Fig. D3



**Fig. D4**



**Fig. D5**



#### 6.1.2.1. Notes in chart

### 1. Installation of VCR Unit

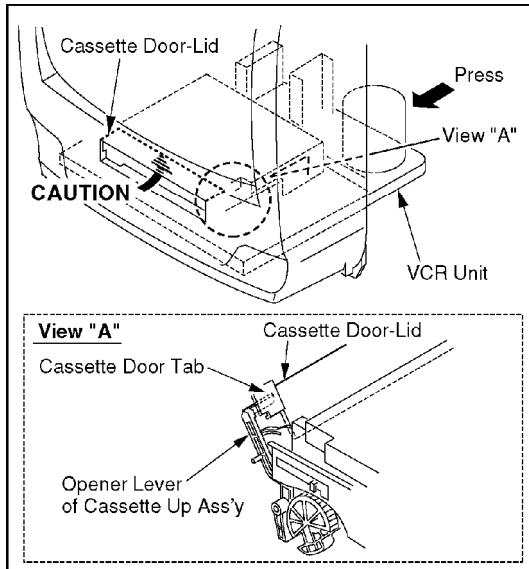
#### **CAUTION:**

**Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.**

**A. When installing the VCR Unit, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.**

**B. Make sure that all guide tabs are aligned properly.  
Then, press the VCR Unit straight in.**

Fig. D6



## 2. Removal of CRT Unit

Place the Unit face down on a soft cloth before removing the CRT Unit.

## 3. Installation of VCR Chassis Unit

When installing 2 Screws (S-5), slide the Holder Unit of the Cassette Up Ass'y (Refer to "**METHOD FOR LOADING/UNLOADING OF MECHANISM**" in Service Notes) to tighten screws. Then, slide it back to the EJECT Position.

Make sure that Mechanism and Cassette Up Ass'y are in the EJECT Position. (Refer to "**EJECT Position Confirmation**" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

## 4. Removal of TV/VCR Main C.B.A.

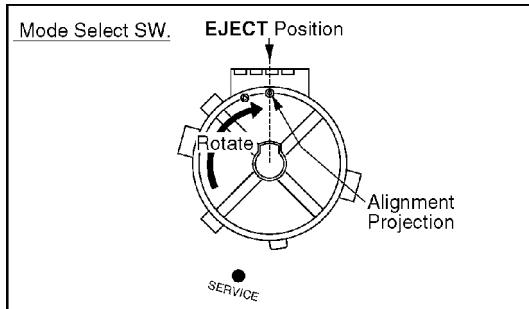
Work carefully so as not to break Sensor LED when lifting the Mechanism Chassis and Cassette Up Ass'y.

Installation of Mechanism Chassis and Cassette Up Ass'y onto TV/VCR Main C.B.A.

A. Make sure the Mode Select SW. on the TV/VCR Main C.B.A. is in EJECT position. If not, rotate the Mode Select SW. until the alignment projection is in the EJECT Position.

B. Make sure the Mechanism and Cassette Up Ass'y are in the EJECT Position. (Refer to "**EJECT Position Confirmation**" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

Fig. D7



**C. Install the Mechanism Chassis and Cassette Up Ass'y straight onto the TV/VCR Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P6201, P6202, P3001, and P4001) are aligned and seated securely.**

#### **5. Installation of Cassette Up Ass'y**

- A. Confirm that the Locking Tab (L-2) under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.**
- B. When installing 2 Screws (S-7), slide the Holder Unit (Refer to "**METHOD FOR LOADING/UNLOADING OF MECHANISM**" in Service Notes) to tighten screws. Then, slide it back to the EJECT Position.**
- C. Hook Spring (P-1) to the Drive Rack Arm on the Mechanism Chassis.**

### **6.2. MECHANISM SECTION**

#### **6.2.1. Disassembly/Reassembly Method**

This procedure starts with the condition that the cabinet parts and TV/VCR Main C.B.A. have been removed.  
When reassembling, perform the step(s) in the reverse order.

**Perform all disassembly/reassembly and alignments procedures in EJECT Position.**

Step/loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	-----	Grounding Plate Unit	J2-1	(S-1)	Adjustment
②	-----	Full Erase Head	J2-1	(L-1)	
③	1	Cylinder Unit	J2-1	P4092, Unsolder, 2(S-2), 3(S-3), Head Amp C.B.A.	TAPE INTERCHANGEABILITY Adjustment
④	-----	Capstan Belt	J3-1	-	
⑤	-----	Support Angle	J3-1	(S-4), (S-5)	
⑥	5	Intermediate Gear B	J3-1	(L-2)	Gear Alignment
⑦	4,5,6	Main Cam Gear	J3-1	Main Cam Push Nut	Gear Alignment
⑧	4	Center Clutch Unit	J4-1	(W-1)	
⑨	4,8	Changing Gear Spring	J4-1	-	
⑩	4,8,9	Changing Gear	J4-1	-	
⑪	4,8,9,10	Idler Arm Unit	J4-1	-	
⑫	-----	Reel Gear	J5-1	2(L-3)	
⑬	4,5,6,7,8,9,10	Main Rod	J5-1	(W-2), (L-4)	Gear Alignment
⑭	-----	Stopper Angle	J6-1	(S-6)	
⑮	4,5,14	Capstan Rotor Unit	J6-1	-	
⑯	4,5,14,15	Oil Seal	J6-1	-	
⑰	4,5,14,15	Capstan Stator C.B.A.	J6-1	P2503, 2(S-7)	
⑱	-----	MR Head	J6-1	(S-8), Unsolder	MR HEAD GAP Adjustment
⑲	4,8,9,10,13	T Loading Arm Unit	J7-1	-	Gear Alignment
⑳	4,5,6,7,8,9,10,13,19	S Loading Arm Unit	J7-1	-	Gear Alignment
㉑	-----	T Brake Unit	J8-1	-	
㉒	-----	Tension Control Arm Unit	J8-1	3(L-5)	
㉓	21	T Reel Table	J8-1	-	
㉔	22	S Reel Table	J8-1	-	
㉕	22	Tension Arm Unit	J8-1	2(L-6), (P-1), (P-2)	
㉖	22,25	Loading Post Base-T Unit	J9	-	P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment
㉗	22,25	Loading Post Base-S Unit	J9	-	
㉘	-----	Opener Piece	J10-1	2(L-7)	
㉙	4,5,6,7	Drive Rack Arm	J10-1	-	
㉚	28	Pinch Arm Unit	J10-1	-	
㉛	28,30	P5 Arm Unit	J10-1	-	
㉜	5,6,28	Intermediate Gear A	J10-1	-	Gear Alignment
㉝	38	Motor Block Unit	J11-1	2(S-9)	
㉞	-----	Audio Control Head Unit	J11	(S-10)	TAPE INTERCHANGEABILITY Adjustment
㉟	5,6,28,30,32,33	Lift Gear	J11	-	
㉟	4,5,14,15,33	Capstan Holder Unit	J11	3(S-11)	
㉟	22,25	Tension Arm Boss	J11	(L-8)	
㉟	-----	Cleaner Arm Unit (Model: H)	J11	(L-9)	

A

B

C

D

E

F

**How to read chart shown above:**

A: Order of Procedure steps.

When reassembling, perform step(s) in reverse order.

These numbers are also used as the identification (location) No. of parts in Figures.

B: Steps to be completed prior to the current step.

C: Part to be removed or installed.

D: Fig. No. showing Procedure or Part Location.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),

(W-1) = Washer (W-1), (P-1) = Spring (P-1),

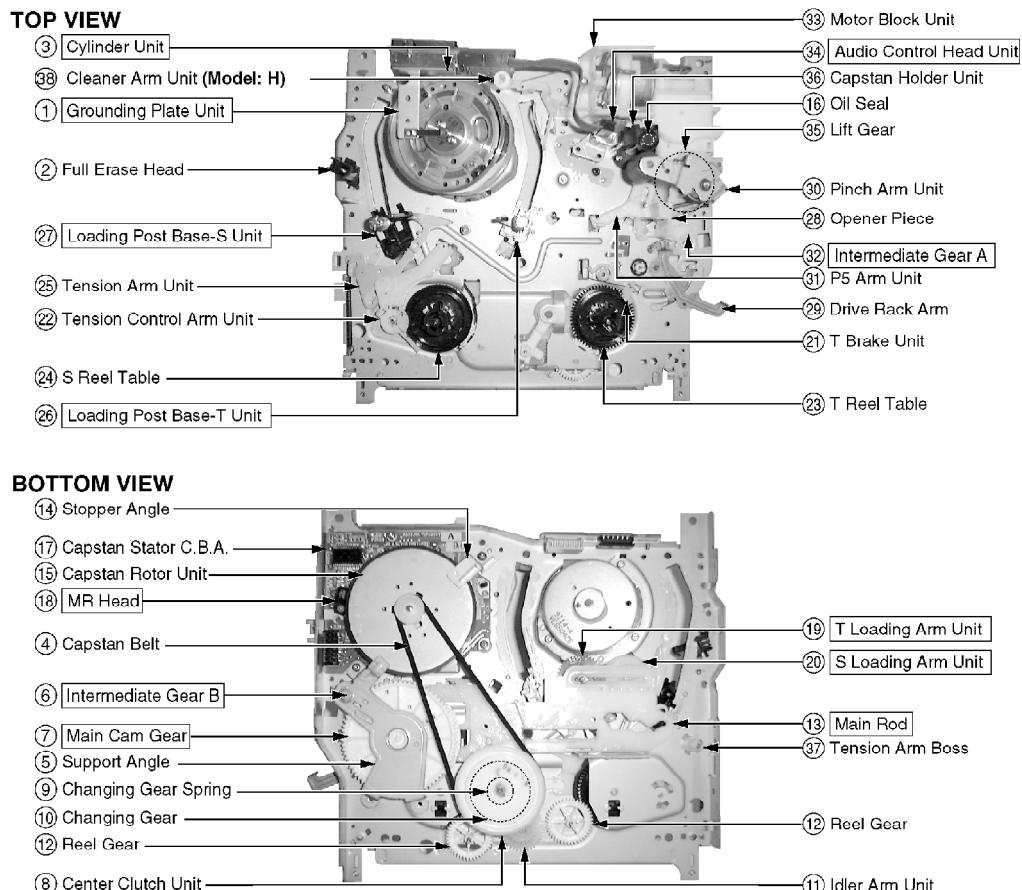
(C-1) = Cut Washer (C-1)

F: Alignment/Adjustment which is required when installing or replacing each Parts.

## 6.2.2. Inner Parts Location

**Note:** BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

**Fig. J1-1**



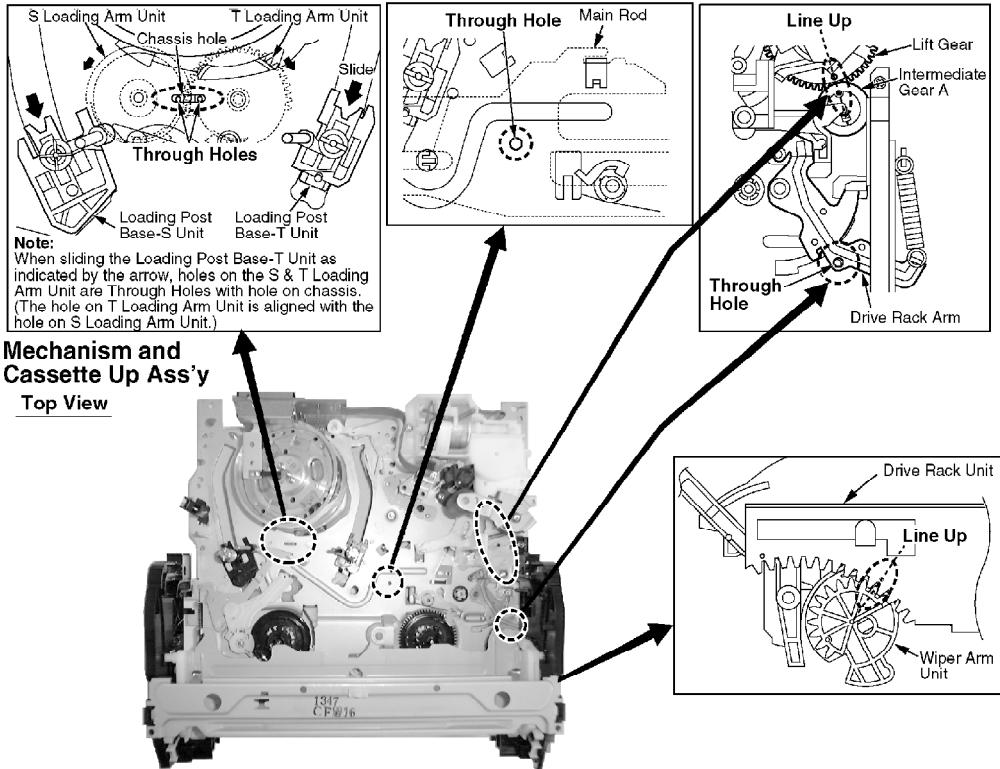
### COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

#### 6.2.3. EJECT Position Confirmation

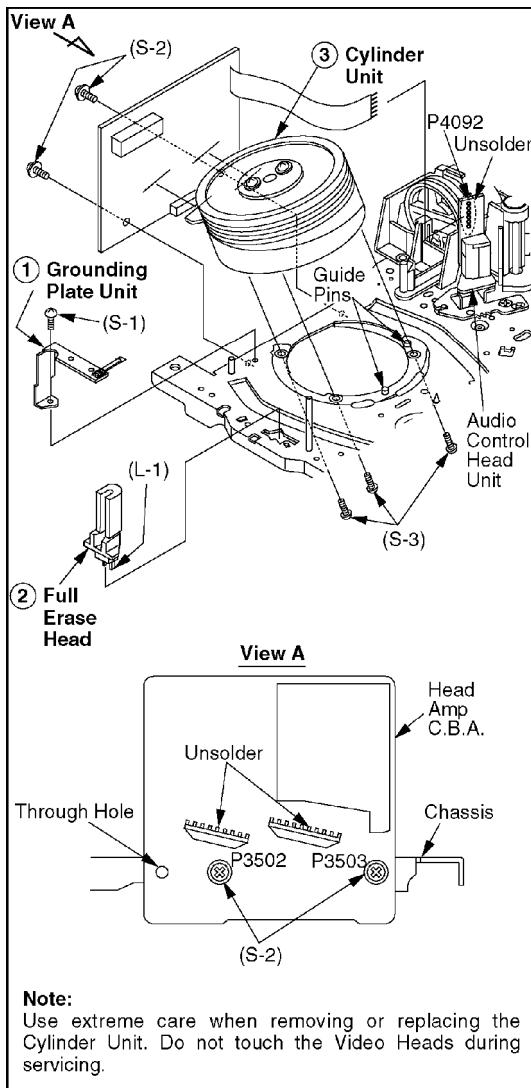
Fig. J1-2

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.



#### 6.2.4. Grounding Plate Unit, Full Erase Head, and Cylinder Unit

Fig. J2-1



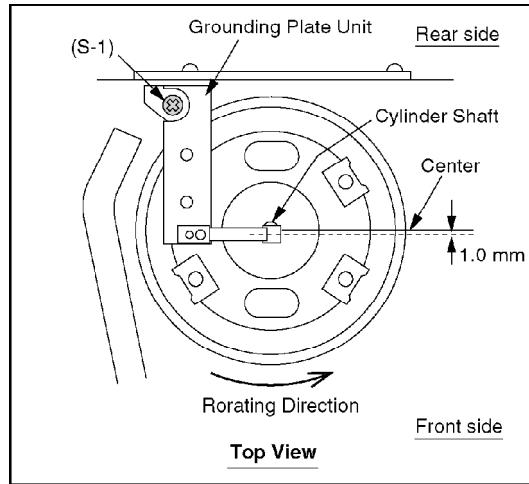
#### 6.2.4.1. Reassembly Notes

##### 1. Adjustment of Grounding Plate Unit

**A. After installing, make sure that the Grounding Plate Unit, on the top side of mechanism chassis, is positioned on the front side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft. If required, adjust the plate position by loosening Screw (S-1). Never install the Grounding Plate Unit on the rear side of the Cylinder shaft.**

**Incorrect positioning will cause cylinder buzz.**

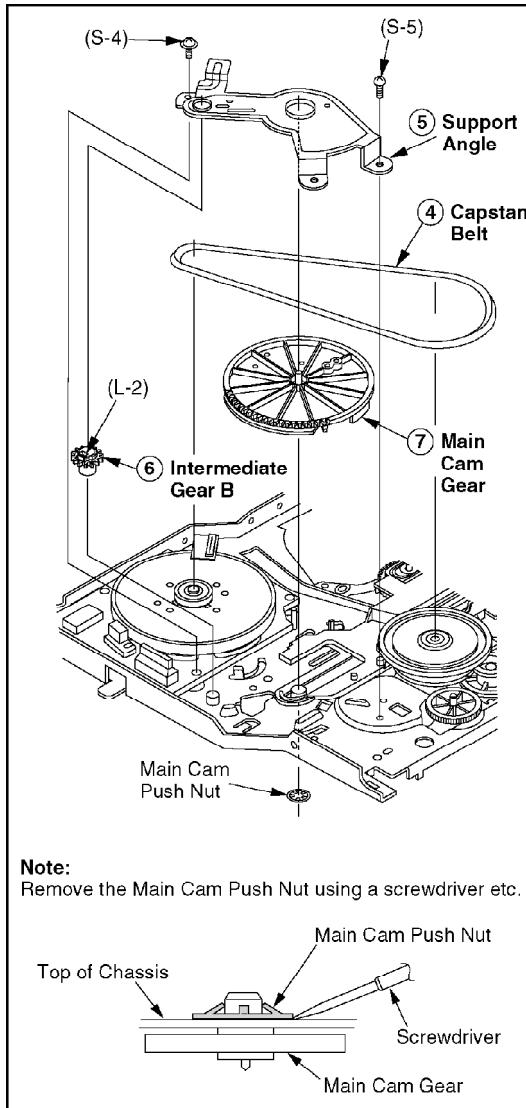
Fig. J2-2



**2. After replacing the Cylinder Unit, clear the Total elapsed "Cylinder rotation" time (in hours) to 0. Refer to "USAGE SCREEN MODE" in SERVICE NOTES.**

#### **6.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear**

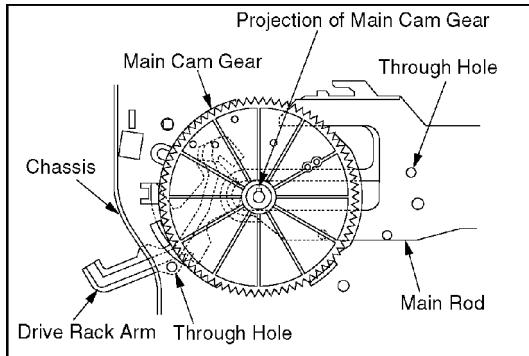
Fig. J3-1



#### 6.2.5.1. Reassembly Notes

- 1. Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod**
  - A. Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.**
  - B. Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.**
  - C. Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.**

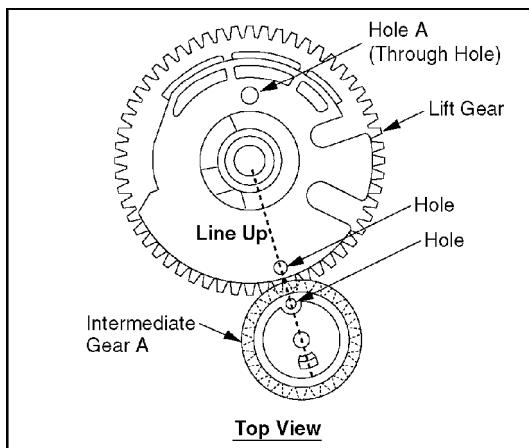
Fig. J3-2



## 2. Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A

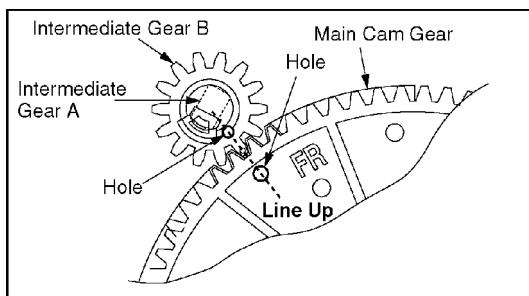
- A. Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.
- B. Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

**Fig. J3-3**



- C. Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.

**Fig. J3-4**

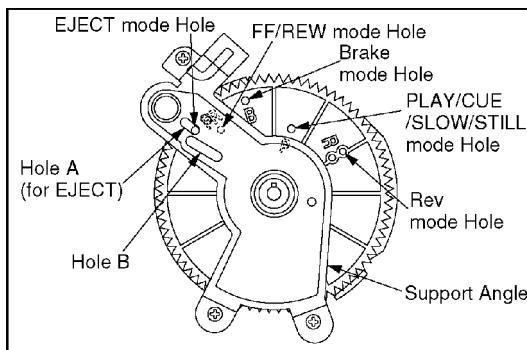


## 3. Holes on Main Cam Gear

- A. The EJECT mode Hole on Main Cam Gear should be a Through

**Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on Support Angle in each mode.**

Fig. J3-5



#### 4. Main Cam Gear Kit

**A. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).**

**Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.**

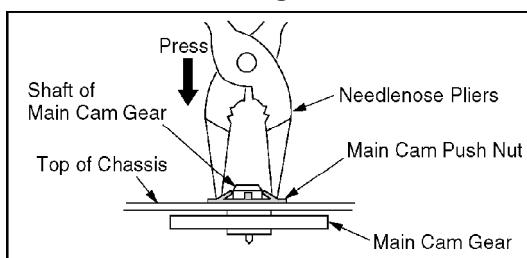
**However, Main Cam Push Nut is available separately as a replacement part.**

#### 5. Installation of Main Cam Gear and Main Cam Push Nut

**A. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.**

**There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, install all new parts.**

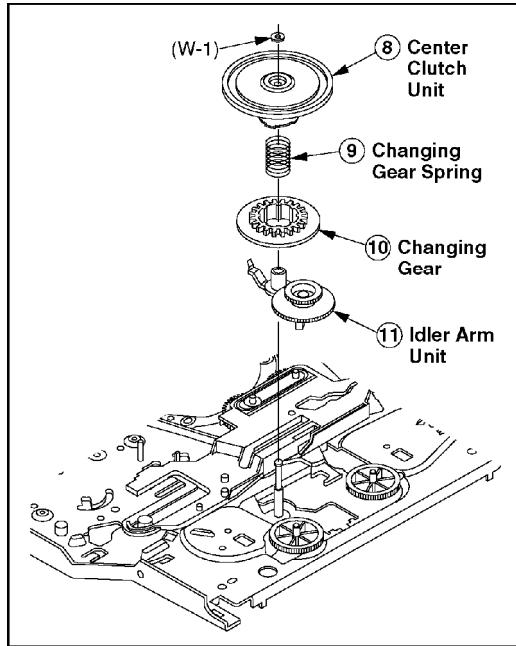
Fig. J3-6



#### 6. The Main Cam Push Nut is not reusable. Install a new one.

##### 6.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

**Fig. J4-1**

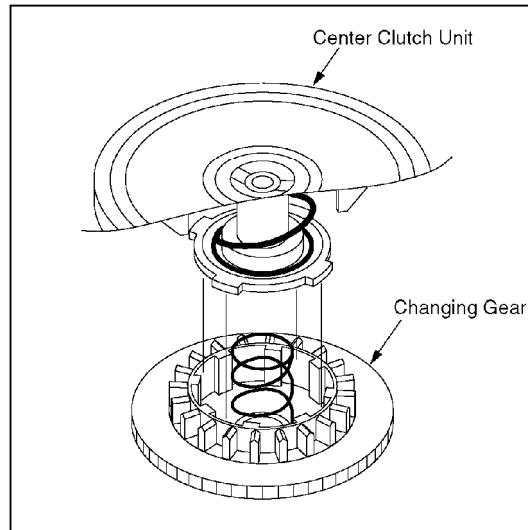


**6.2.6.1. Reassembly Notes**

**1. Installation of Center Clutch Unit**

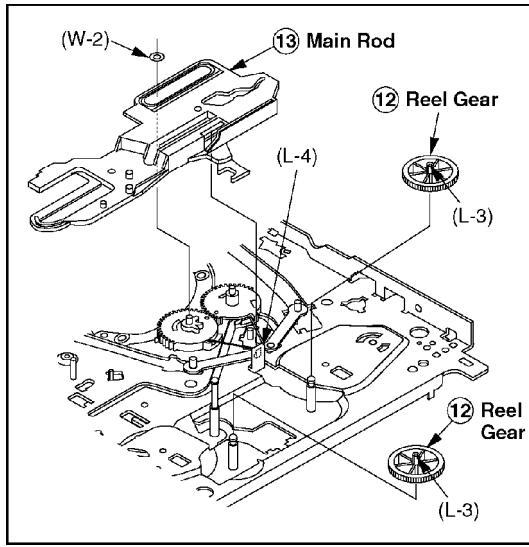
**A. Fit the Center Clutch Unit into the Changing Gear.**

**Fig. J4-2**



**6.2.7. Reel Gear and Main Rod**

**Fig. J5-1**



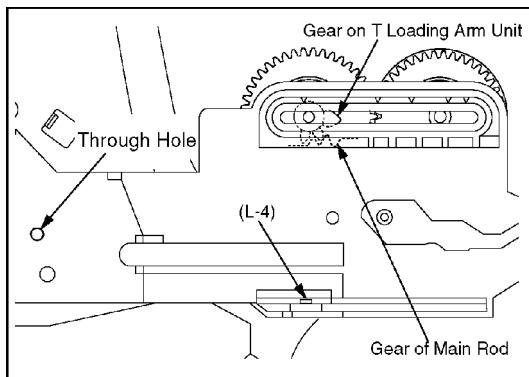
#### 6.2.7.1. Reassembly Notes

### 1. Alignment of Main Rod and T Loading Arm Unit

#### A. Align the Gear of T Loading Arm Unit with Gear of Main Rod.

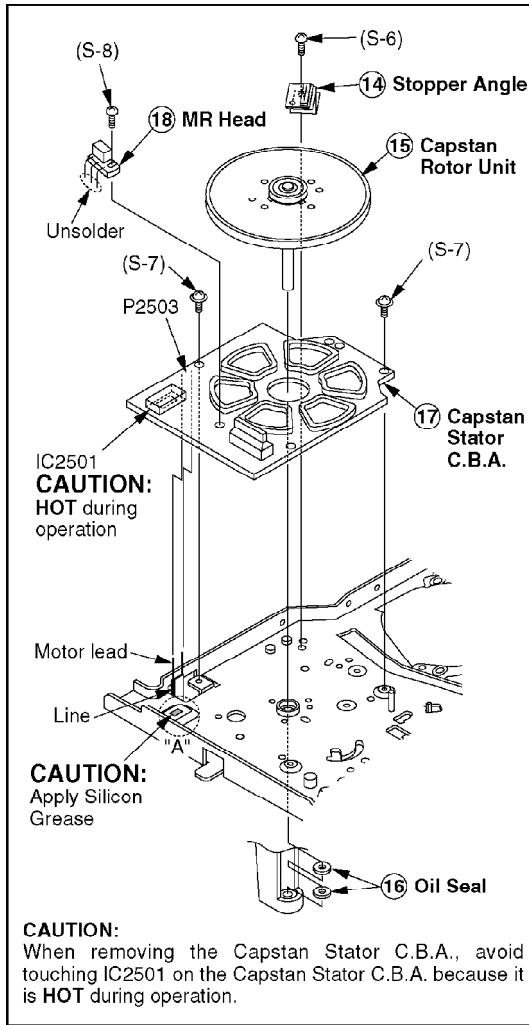
Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.

Fig. J5-2



#### 6.2.8. Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., and MR Head

Fig. J6-1



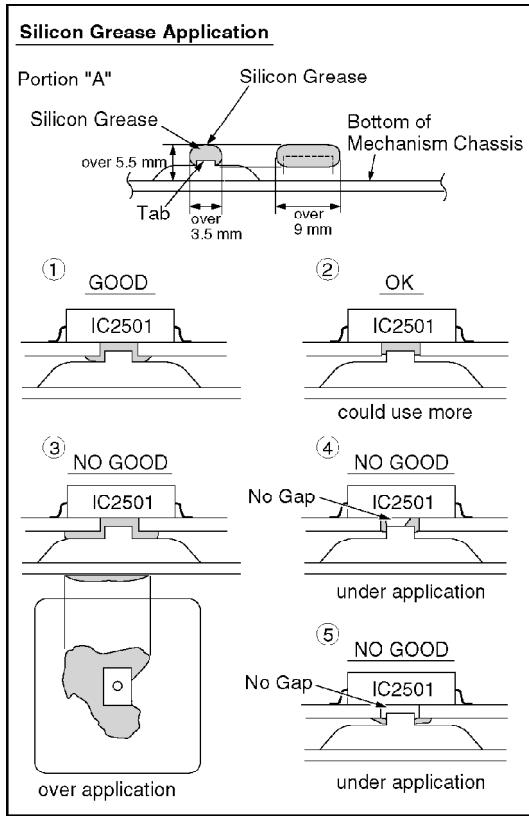
#### 6.2.8.1. Reassembly Notes

### 1. Application of Silicon Grease

#### CAUTION:

When installing the IC2501 (AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

Fig. J6-2

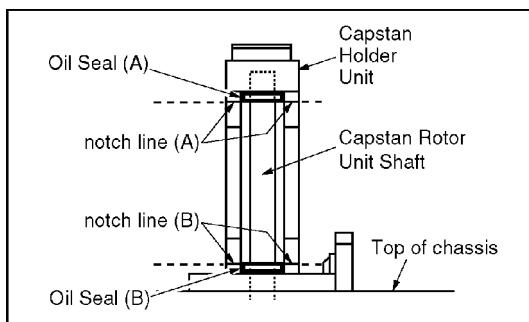


## 2. Installation of Capstan Rotor Unit and Oil Seal

**A. Install the 2 Oil Seals into the Capstan Holder Unit. Then, insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit so that shaft passes through 2 Oil Seals. Be careful not to scratch the Shaft or Capstan Holder Unit.**

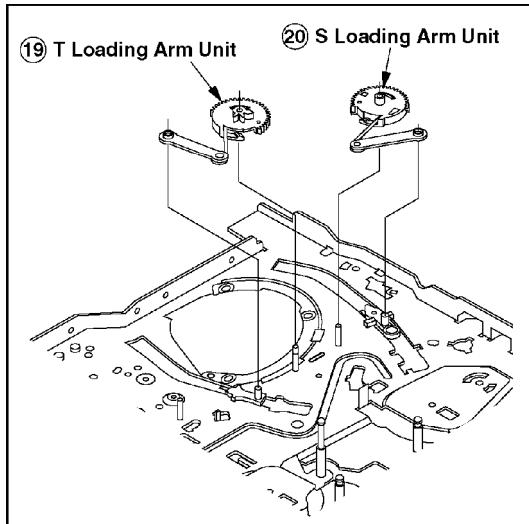
**B. Align the bottom of Oil Seal (A) with notch line (A). Align the top of Oil Seal (B) with notch line (B).**

Fig. J6-3



### 6.2.9. T Loading Arm Unit and S Loading Arm Unit

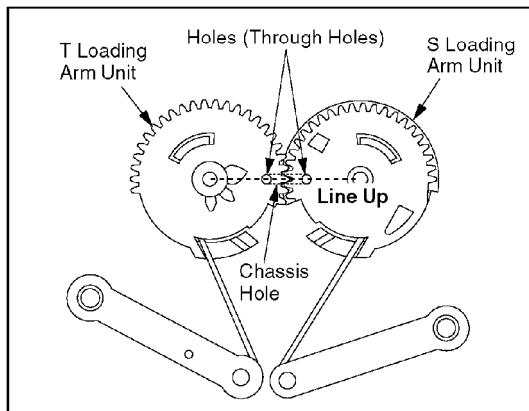
Fig. J7-1



#### 6.2.9.1. Reassembly Notes

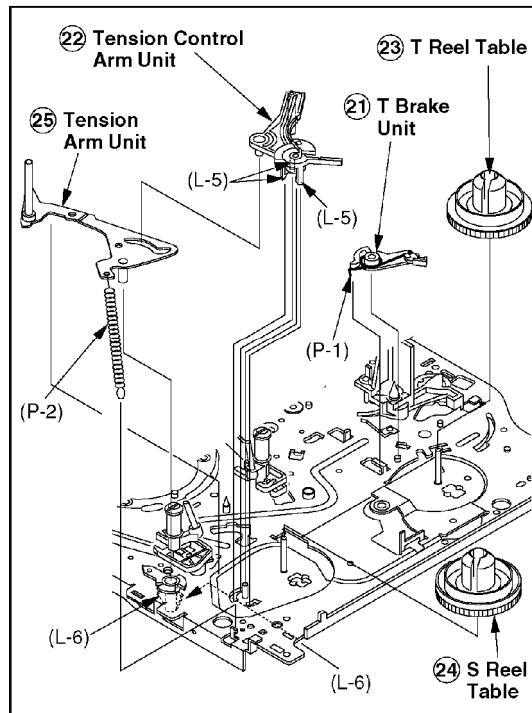
- 1. Alignment of T Loading Arm Unit and S Loading Arm Unit**
  - A. Install the S Loading Arm Unit onto the chassis.**
  - B. Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.**
  - C. Confirm that the holes on the S & T Loading Arm Unit are Through Holes with hole on chassis.**

Fig. J7-2



#### 6.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

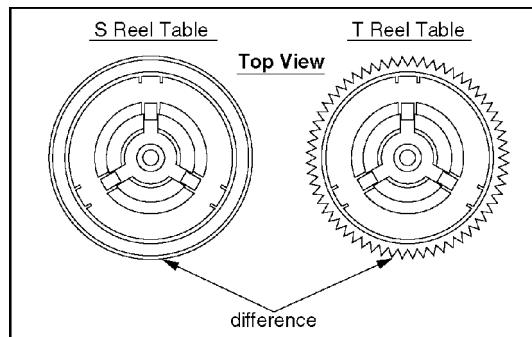
Fig. J8-1



#### 6.2.10.1. Reassembly Notes

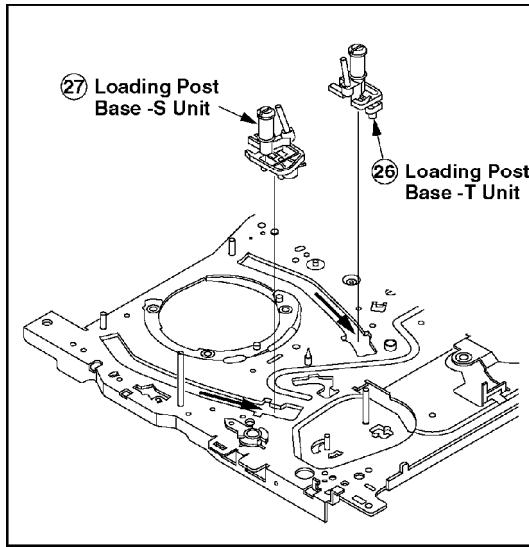
### 1. How to distinguish between S Reel Table and T Reel Table

Fig. J8-2



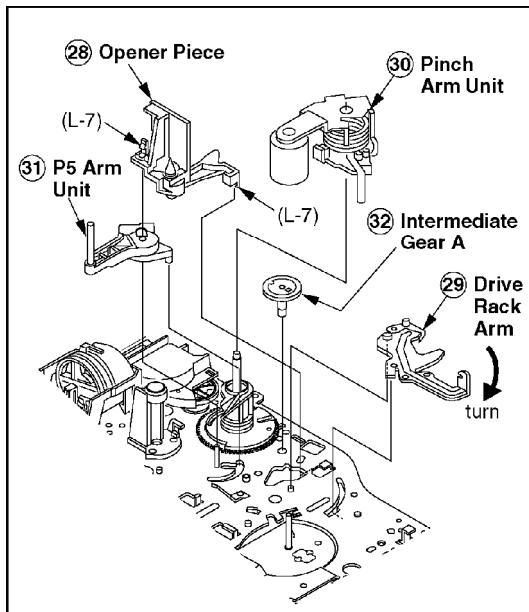
#### 6.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

Fig. J9



### 6.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

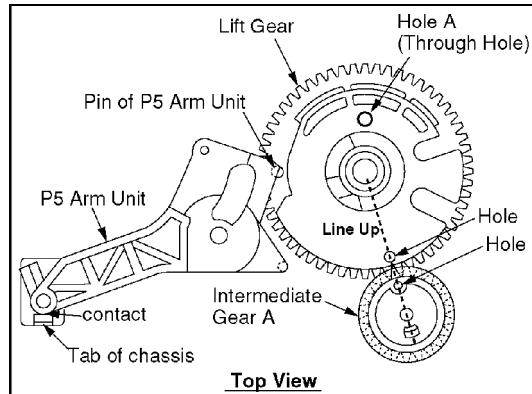
Fig. J10-1



#### 6.2.12.1. Reassembly Notes

- 1. Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit**
  - A. Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.**
  - B. Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.**
  - C. Install the P5 Arm Unit so that it contacts with the tab of chassis.**

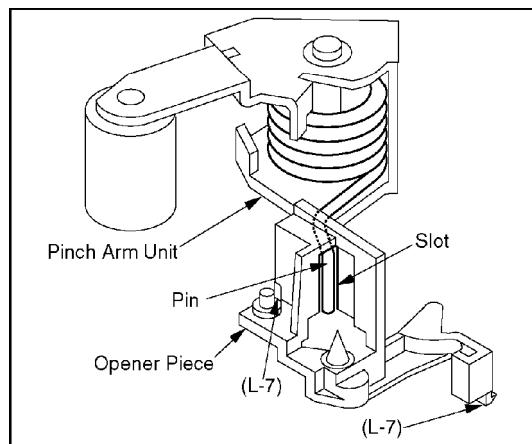
Fig. J10-2



## 2. Installation of Opener Piece

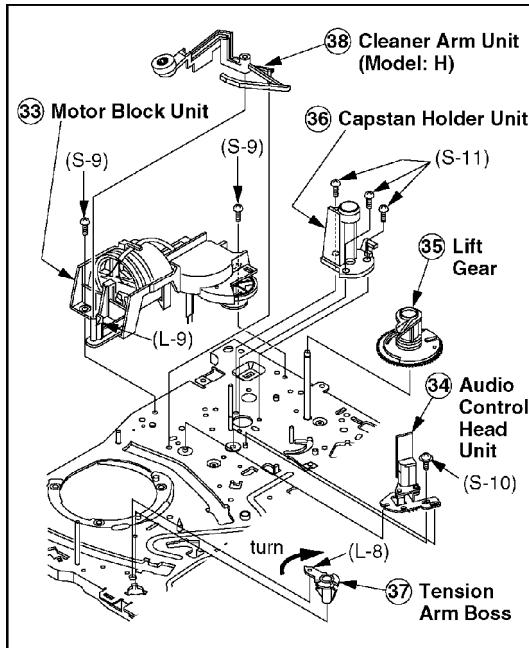
**A. Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit**

Fig. J10-3



### 6.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear, Capstan Holder Unit, Tension Arm Boss, and Cleaner Arm Unit

Fig. J11



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### 6.3. CASSETTE UP ASS'Y SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
(1)	-----	Top Plate	K1-1	(L-1), (L-2)	
(2)	1	Wiper Arm Unit	K1-1	2(L-3)	Gear Alignment
(3)	1,2	Holder Unit	K1-1	-	
(4)	-----	Opener Lever	K2	2(L-4)	
(5)	1,2,3,4	Drive Rack Unit	K2	-	

A      B      C      D      E      F

**How to read chart shown above:**

**A: Order of Procedure steps.**

**When reassembling, perform steps(s) in reverse order.**

**These numbers are also used as the identification (location) No. of parts in Figures.**

**B: Steps to be completed prior to the current step.**

**C: Part to be removed or installed.**

**D: Fig. No. showing Procedure or Part Location.**

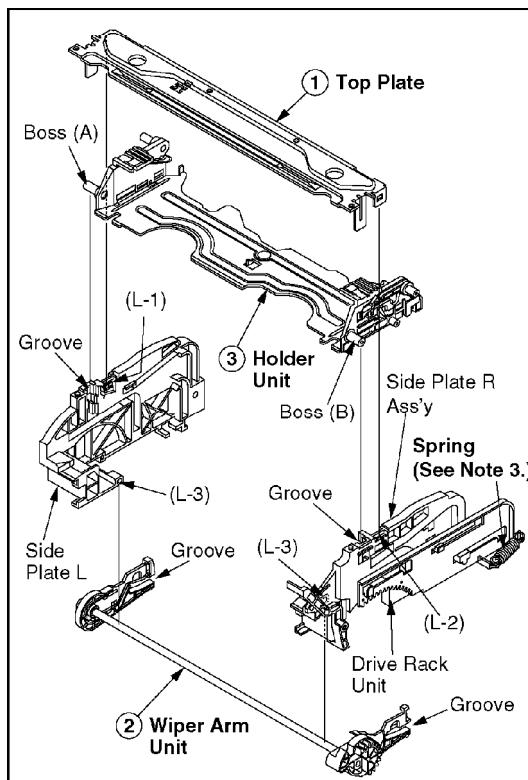
**E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.**

**(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1), (W-1) = Washer (W-1),  
(P-1) = Spring (P-1), (C-1) = Cut Washer (C-1)**

**F: Alignment/Adjustment which is required when installing or  
replacing each Parts.**

### 6.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

Fig. K1-1

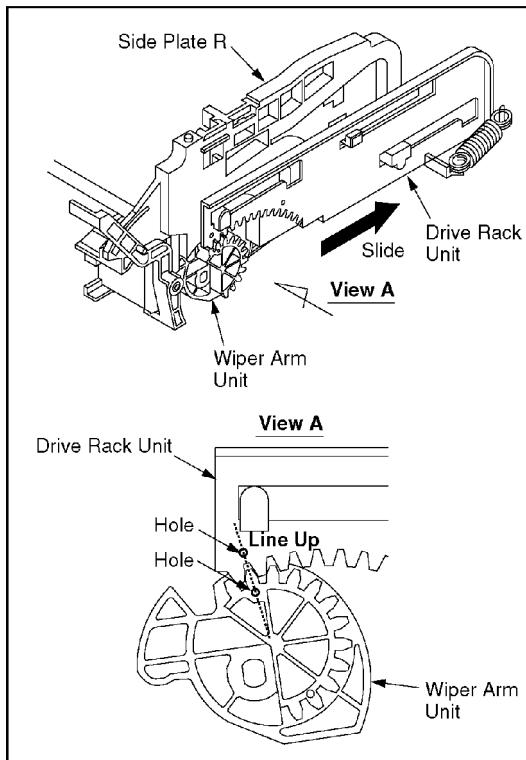


#### 6.3.1.1. Reassembly Notes

##### 1. Alignment of Wiper Arm Unit and Drive Rack Unit

- A. Slide the Drive Rack Unit to the far right as indicated by the arrow.
- B. Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.

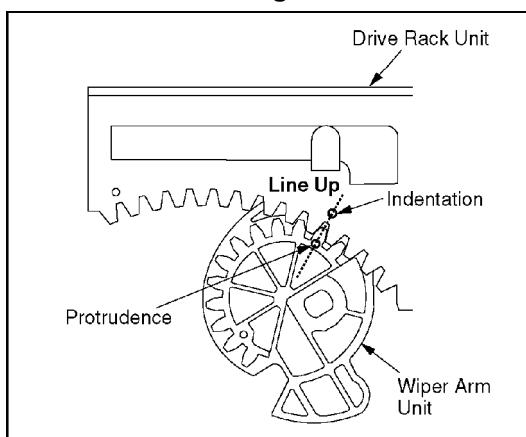
Fig. K1-2



## 2. Installation of Holder Unit

- A. Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.
- B. Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.
- C. Finally, in the EJECT Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.

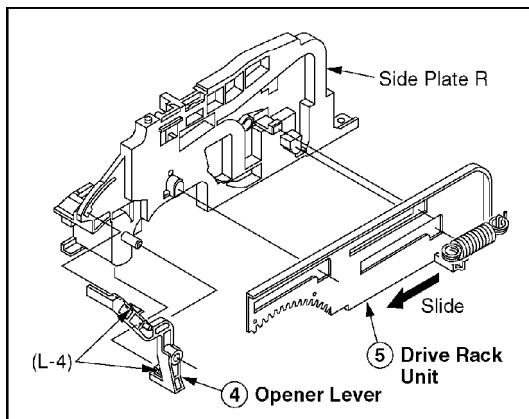
Fig. K1-3



## 3. Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.

### 6.3.2. Opener Lever and Drive Rack Unit

Fig. K2



## 7. ADJUSTMENT PROCEDURES

### 7.1. SERVICE FIXTURES AND TOOLS

VFMS0003H6 VHS Alignment Tape Video Audio	Back Tension Meter (Made in USA., Purchase Locally) 	VFK27 
VFK1301 Silicon Grease	VFKS0081 Grease	VFK0329 Post Adjustment Driver
VFK0330 H-Position Adjustment Driver	TSM10032-2 Permalloy Magnetic Strip	

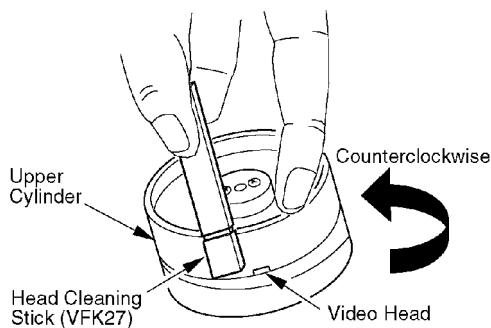
### 7.2. MECHANICAL ADJUSTMENT

#### 7.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.

When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

**Fig. M1**



**Note:**

- 1. Do not rub vertically or apply excess pressure to the Video Heads.  
Do not turn the Upper Cylinder Unit clockwise while cleaning.**
- 2. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.**

### **7.2.2. ADJUSTMENT PROCEDURES**

#### **7.2.2.1. BACK TENSION CONFIRMATION**

**Purpose:**

To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.

**Symptom of Misadjustment:**

- 1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.**
- 2) If the tape tension is too high, the tape will soon be damaged.**

**Equipment Required:**

**Back Tension Meter (Made in U.S.A., Purchase Locally)**

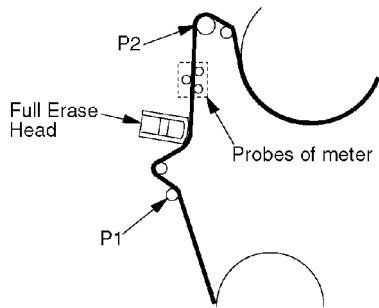
**VHS Cassette Tape (120-Minute Tape)**

**Specification:**

**20 gf $\pm$ 2.5 gf  
(0.196 N $\pm$ 0.025 N)**

- 1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.**
- 2. Insert a Tension Meter into tape path and measure the back tension.**

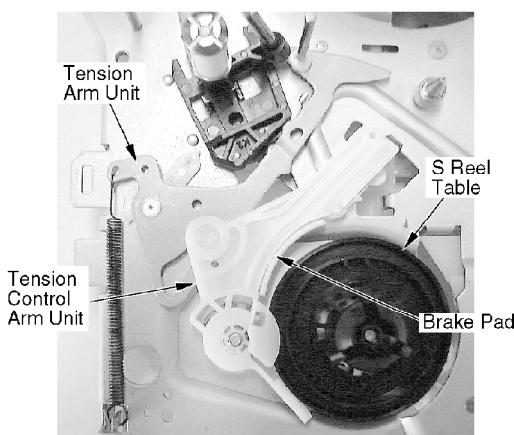
**Fig. M2-1**



**3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.**

After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.

**Fig. M2-2**



**Note:**

- 1. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.**
- 2. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.**

**7.2.2.2. MR HEAD GAP ADJUSTMENT**

**Purpose:**

To properly pick up the FG Signal.

**Symptom of Misadjustment:**

If the FG Signal is not properly picked up, Servo Operation cannot

be achieved.

**Equipment Required:**

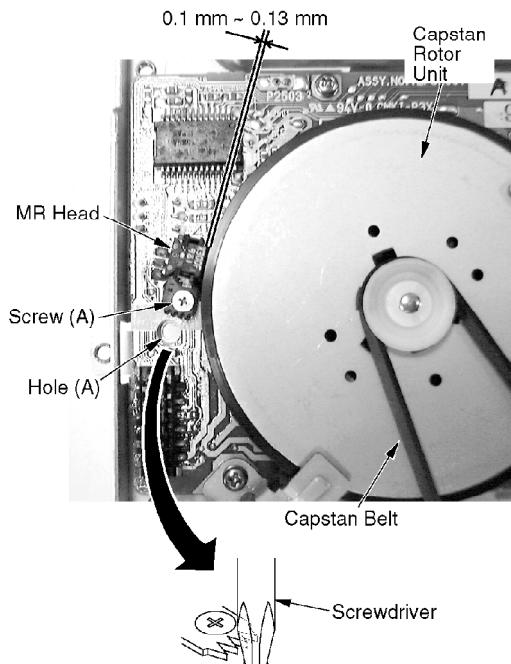
Oscilloscope

**Specification:**

0.1 mm ~ 0.13 mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the TV/VCR Main C.B.A.
3. Slightly loosen Screw (A). Then set the Screwdriver (Phillips Driver) into the Hole (A). Turn the screwdriver clockwise until the MR Head touches the rotor. Then turn it slightly counterclockwise to make the clearance as specified.
4. Tighten Screw (A).
5. Reinstall the TV/VCR Main C.B.A.

**Fig. M3-1**



**Note:**

**Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).**

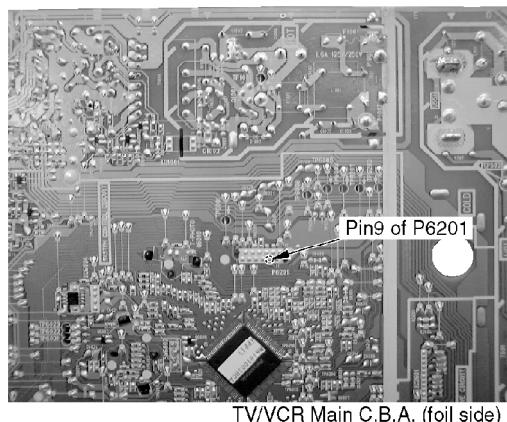
**Confirmation of Signal Level**

1. Place the unit in Service Position (2). Refer to "**SERVICE POSITION**

" in SERVICE NOTES.

2. Supply a Video Signal to the video input jack.
3. Insert a cassette tape and place the unit in SLP recording mode.
4. Connect the oscilloscope to Pin 9 of P6201 on the TV/VCR Main C.B.A. Confirm that the signal level is greater than 20 mV [P-P].

Fig. M3-2



#### 7.2.2.3. TAPE INTERCHANGEABILITY ADJUSTMENT

**Note:**

To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

**Equipment Required:**

Dual Trace Oscilloscope  
VHS Alignment Tape (VFMS0003H6)  
Post Adjustment Driver (VFK0329)  
H-Position Adjustment Driver (VFK0330)

##### 7.2.2.3.1. ENVELOPE OUTPUT ADJUSTMENT

The height of the P2 and P3 Posts replacement part is preadjust at the factory.

**Purpose:**

To achieve a satisfactory picture and secure precise tracking.

**Symptom of Misadjustment:**

If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

**Equipment Required:**

Post Adjustment Driver (VFK0329)

1. Place a jumper between TP6003 and +5V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.
5. Confirm that the RF envelope is flat enough ( $V1/V\text{-max.}$  is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat ( $V1/V\text{-max.}$  is 0.7 or more) as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.

**CAUTION:**

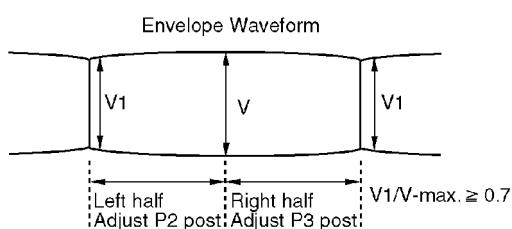
Overtightening P2 and P3 posts may cause the threads to strip.

**Note:**

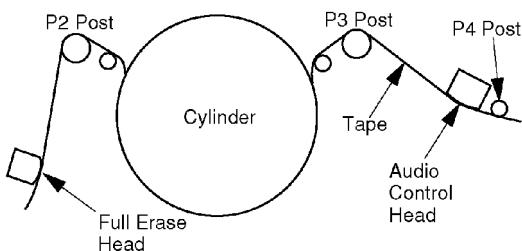
It will be possible to confirm Step 5 according to following steps.

1. Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

**Fig. M4-1**

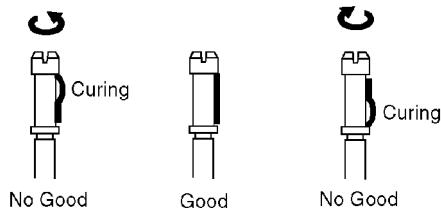


**Fig. M4-2**



**6. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.**

**Fig. M4-3**



**7. Remove the jumper after completing the adjustment procedure.**

**7.2.2.3.2. AUDIO CONTROL HEAD TILT ADJUSTMENT**

**Purpose:**

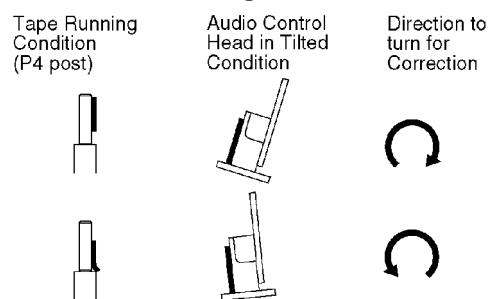
To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

**Symptom of Misadjustment:**

If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

- 1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.**
- 2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.**

**Fig. M5**



**7.2.2.3.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT**

The height of the Audio Control Head replacement part is preset at the factory.

**Purpose:**

To be sure the tape runs properly along the Control Head.

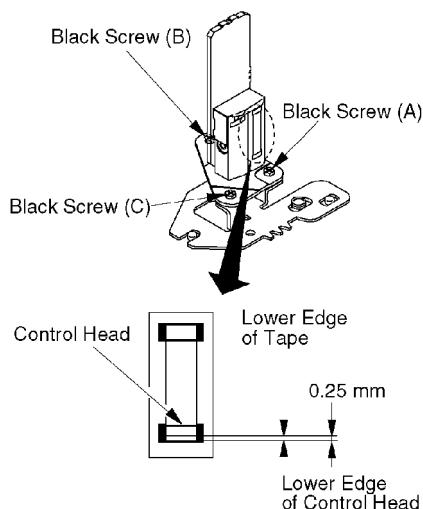
### Symptom of Misadjustment:

If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

Fig. M6



#### 7.2.2.3.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

### Purpose:

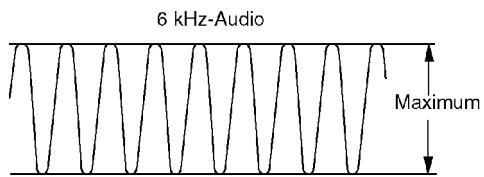
To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

### Symptom of Misadjustment:

If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. Connect the oscilloscope to the TP4002 on the TV/VCR Main C.B.A.
2. Play back the 6 kHz Monaural Audio portion of the alignment tape.
3. Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.

Fig. M7



4. Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).

#### 7.2.2.3.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

**Purpose:**

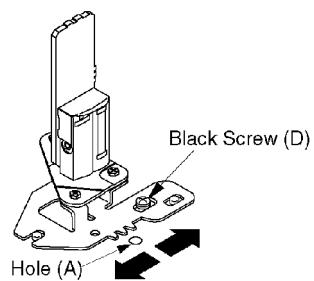
To adjust the Horizontal Position of the Audio Control Head.

**Symptom of Misadjustment:**

If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Place a jumper between TP6003 and +5V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.
5. Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.

Fig. M8



6. Tighten Black Screw (D).
7. Remove the jumper between TP6003 and +5V(TP6009).

**Note:**

**Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.**

## **7.3. ELECTRICAL ADJUSTMENT**

### **7.3.1. TEST EQUIPMENT**

To do all of these electrical adjustments, the following equipment is required.

**1. Dual-Trace Oscilloscope**

**Voltage Range: 0.001 V to 50 V/Div.**

**Frequency Range: DC to 50 MHz**

**Probes: 10:1, 1:1**

**2. NTSC Video Pattern Generator**

**3. DVM (Digital Volt Meter)**

**4. MTS/SAP Signal Generator**

**(TV Multi-Channel Sound Modulator (U.S.A.))**

**5. Frequency Counter**

**Frequency Range: 0 to 150 MHz**

**6. Plastic Tip Driver and Non-Metal Driver**

**7. Isolation Transformer (Variable)**

**8. VHS Alignment Tape (VFMS0003H6)**

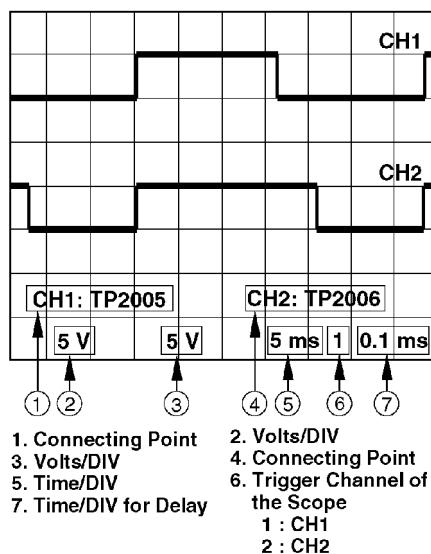
**9. Degaussing Coil**

**10. White Pattern Generator**

**11. Audio Generator**

### **7.3.2. HOW TO READ THE ADJUSTMENT PROCEDURES**

**Fig.E1**



### 7.3.3. STEREO/SAP SEPARATION ADJUSTMENT (FOR MODEL WITH TV STEREO/ Hi-Fi AUDIO)

**Purpose:**

To separate the L and R Channels of Stereo Signal.

**Symptom of Misadjustment:**

The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

**Test Point :**

**TP9001 (Audio C.B.A.)**

**Adjustment :**

**R9001, R9008 (Audio C.B.A.)**

**Specification :**

**minimum level**

**INPUT :**

**Antenna Input Terminal**

**MTS (ONLY L CH)**

**300 Hz±5 Hz, 3 kHz±5 Hz**

**14 % or 7 % Modulating**

**Mode :**

**STEREO audio (TV)**

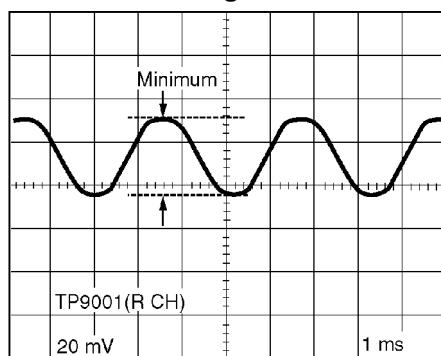
**Equipment :**

**Oscilloscope,**

## **MTS/SAP Signal Generator**

- 1. Set to TV mode, and then set to STEREO audio.**
- 2. Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.**  
Then, set the MTS/SAP Signal Generator as follows.  
**MTS (ONLY L CH)**  
**300 Hz±5 Hz**  
**14 % or 7 % Modulating**
- 3. Connect the Oscilloscope to TP9001 on the Audio C.B.A.**
- 4. Adjust R9001 (SEP (L) ) on the Audio C.B.A. so that the signal level of TP9001 is minimum.**
- 5. Set the MTS/SAP Signal Generator as follows.**  
**MTS (ONLY L CH)**  
**3 kHz±5 Hz**  
**14 % or 7 % Modulating**
- 6. Adjust R9008 (SEP (H) ) on the Audio C.B.A. so that the signal level of TP9001 is minimum.**

**Fig.E2**



### **7.3.4. SEPARATION ADJUSTMENT (FOR MODEL WITH TV STEREO/HI-FI AUDIO)**

**Note:**

**Be sure to perform this adjustment after STEREO/SAP SEPARATION ADJUSTMENT are completed.**

**Purpose:**

**To separate the L and R Channels of Stereo Signal.**

**Symptom of Misadjustment:**

**The L and R Channels of Stereo Signal will not be separated**

**properly resulting in no stereophonic effect.**

**Test Point :**

**TP4202 (Audio C.B.A.)**

**Adjustment :**

**R9003 (Audio C.B.A.)**

**Specification :**

**minimum level**

**INPUT :**

**Antenna Input Terminal**

**MTS (ONLY L CH)**

**300 Hz±5 Hz, 3 kHz±5 Hz**

**14 % or 7 % Modulating**

**Mode :**

**STEREO audio (TV)**

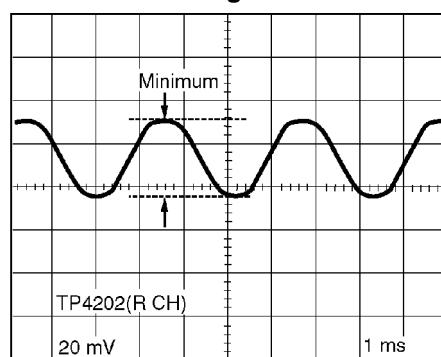
**Equipment :**

**Oscilloscope,**

**MTS/SAP Signal Generator**

- 1. Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.**
- 2. Connect the Oscilloscope to TP4202 (R CH) on the Audio C.B.A.**
- 3. Set to TV mode, and then set to STEREO audio.**
- 4. Adjust R9003 on the Audio C.B.A. so that the signal level is minimum.**

**Fig.E3**



### **7.3.5. FM VCO ADJUSTMENT (FOR MODEL WITH FM RADIO AND TV STEREO/Hi-Fi AUDIO)**

**Purpose:**

To set VCO free run frequency.

**Symptom of Misadjustment:**

Even when stereophony is received, only monaural sound will be output.

**Test Point :**

**Pin 32 of P4204, TP9201 (Audio C.B.A.)**

**Adjustment :**

**R9206 (Audio C.B.A.)**

**Specification :**

**38.0 kHz $\pm$ 50 Hz**

**INPUT :**

-----

**Mode :**

**STEREO audio (FM Radio)**

**Equipment :**

**Frequency Counter**

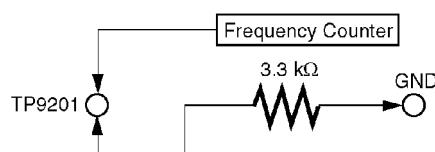
**1. Connect Pin 32 of P4204 on Audio C.B.A. to GND.**

Fig.E4-1



**2. Connect TP9201 on Audio C.B.A. to GND through a resistor (3.3 k $\Omega$ ). Then, connect Frequency Counter to TP9201.**

Fig.E4-2



### 7.3.6. EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept. The following control functions are adjusted by using "On Screen Displays" and the remote control instead of adjusting mechanical controls (VR).

Control functions	*2 Address	Range	Default
<b>SUB COLOR</b>	00	C0 - FF, 00 - 3F	00
<b>SUB TINT</b>	01	E0 - FF, 00 - 1F	00
<b>SUB BRIGHT</b>	02	C0 - FF, 00 - 3F	F0
<b>CONTRAST</b>	03	C1 - FF, 00	00
<b>SUB SHARPNESS</b>	04	E0 - FF, 00 - 1F	00
<b>R CUT-OFF</b>	05	00 - 7F	1E
<b>G CUT-OFF</b>	06	00 - FD	3C
<b>B CUT-OFF</b>	07	00 - FD	3C
<b>G DRIVE</b>	08	00 - 7F	40
<b>B DRIVE</b>	09	00 - 7F	40
<b>SUB CONTRAST</b>	0A	00 - 0F	06
<b>H CENTER</b>	0B	00 - 0F	08
<b>SUB V</b>	0C	00 - 03	00
<b>V SIZE</b>	0D	00 - 7F	40
<b>V POSITION *3</b>	0E	00 - 7F	40
<b>ANR CTL</b>	10	00 - EF	89
<b>PICTURE CTL</b>	11	00 - EF	86
<b>VV COLOR *1</b>	12	C0 - FF, 00 - 3F	00
<b>VV TINT *1</b>	13	E0 - FF, 00 - 1F	00
<b>VV SHARPNESS</b>	14	E0 - FF, 00 - 1F	F8
<b>PG SHIFTER</b>	15	01 - FD	80
<b>FM ANT</b>	18	00 - 01	00

Bold-faced letters → Control functions which need to be adjusted.

Note:

- \*1 After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows.
  - Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).
  - Write the same value of SUB TINT (Address 01) to VV TINT (Address 13).

\*2 Address is not displayed on the TV screen.  
Other Addresses except above are not used.

\*3 For Model with 20 inch CRT, V POSITION are not required in EVR adjustment.

#### 7.3.6.1. EVR ADJUSTMENT ITEM

The following Items need to be adjusted for EVR adjustment.

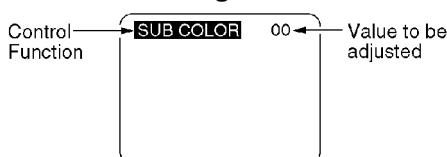
- PG SHIFTER ADJUSTMENT**
- SUB CONTRAST ADJUSTMENT**
- CUT OFF, DRIVE ADJUSTMENT**
- SUB COLOR/SUB TINT ADJUSTMENT**
- V. HEIGHT/H. POSITION ADJUSTMENT**
- WHITE BALANCE ADJUSTMENT**
- SUB BRIGHTNESS ADJUSTMENT**

#### 7.3.6.2. How to enter EVR adjustment mode

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.

The adjustment overlay will appear.

Fig.E5-1



#### 7.3.6.2.1. How to adjust:

1. Press CH UP/DOWN key on the remote control to select control

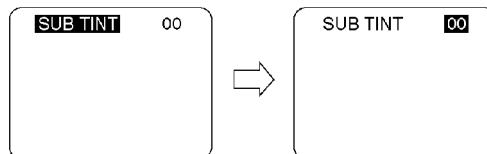
function to be adjusted.

**Important Note:**

Make a note of the original value of the controls before modifying in case the wrong control is adjusted.

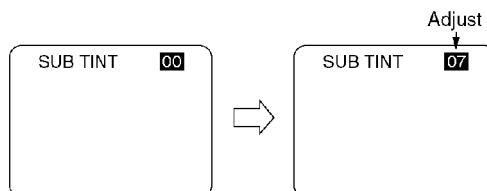
2. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the value.

Fig.E5-2



3. Press CH UP/DOWN key on the remote control to adjust the value of the selected control.

Fig.E5-3

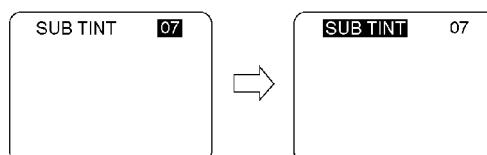


**Note:**

You can select a desired channel by using the numbered keys on the remote control in EVR adjustment mode.

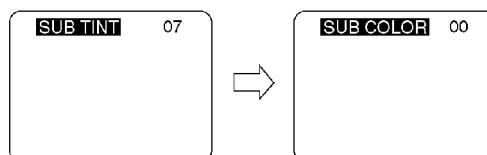
4. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the control function.

Fig.E5-4



5. Press CH UP/DOWN key on the remote control to select a control function for the next adjustment if necessary.

Fig.E5-5



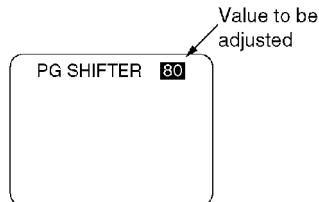
#### 7.3.6.2.2. How to release from EVR Adjustment Mode:

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF. The adjusted value will be written to Memory IC (IC6004).

### 7.3.6.3. HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE

- 1. Enter EVR adjustment mode.**
- 2. Insert the VHS Alignment Tape and playback in SP mode.  
The adjustment overlay will appear.**

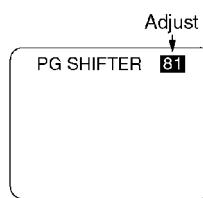
Fig.E5-6



#### 7.3.6.3.1. How to adjust:

Press CH UP/DOWN key on the remote control to adjust the value.

Fig.E5-7



#### 7.3.6.3.2. How to release from EVR PG Shifter Adjustment Mode:

Press STOP button or press the POWER button OFF.

The adjusted value will be written to Memory IC (IC6004).

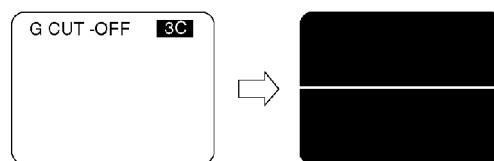
### 7.3.6.4. HOW TO ENTER SERVICE MODE

- 1. Enter EVR adjustment mode.**
- 2. Press DISPLAY key on the remote control for collapse scan.**

**Note:**

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value for adjustments you will proceed.

Fig.E5-8



#### 7.3.6.4.1. How to release from Service Mode:

Press DISPLAY key again on the remote control.

### 7.3.7. PG SHIFTER ADJUSTMENT

**Purpose:**

Determine the Video Head Switching Point during Playback.

**Symptom of Misadjustment:**

May cause Head Switching Noise and/or Vertical Jitter.

**Test Point :**

TP3001 (TV/VCR Main C.B.A.),

TP6205 (TV/VCR Main C.B.A.)

**Adjustment :**

**PG SHIFTER (EVR)**

**Specification :**

T = 6 H±1 H (0.38 ms±0.06 ms)

**INPUT :**

-----

**Mode :**

SP Playback

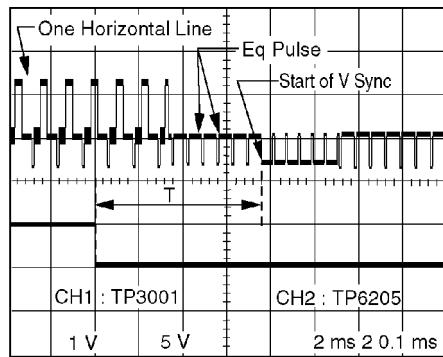
**Equipment :**

Oscilloscope,

VHS Alignment Tape (VFMS0003H6)

1. Enter EVR PG Shifter Adjustment mode, refer to "[\*\*HOW TO ENTER  
EVR PG SHIFTER ADJUSTMENT MODE.\*\*](#)"
2. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Used TP6205 as a trigger.
3. Adjust value so that the trailing edge of the head switching pulse is placed 6 H±1 H (0.38 ms±0.06 ms) before the start of the vertical sync pulse.
4. Release EVR PG Shifter Adjustment Mode.  
The adjusted value will be written to Memory IC (IC6004).

Fig.E6



### 7.3.8. SUB CONTRAST ADJUSTMENT

**Purpose:**

To set the optimum sub contrast level.

**Symptom of Misadjustment:**

The picture is too dark or too light.

**Test Point :**

Pin 5 of P6001 (TV/VCR Main C.B.A.) or TP49 (CRT C.B.A.)

**Adjustment :**

**SUB CONTRAST (EVR)**

**Specification :**

**3.0 V[p-p]±0.1 V[p-p]**

**INPUT :**

**Video Input Jack,**

**Crosshatch Pattern Signal 1 V[p-p]**

**(75 Ω terminated)**

**Mode :**

**STOP**

**Equipment :**

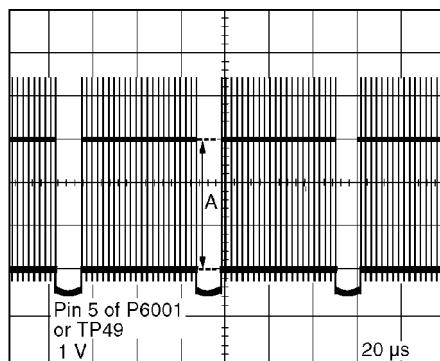
**Oscilloscope,**

**NTSC Video Pattern Generator**

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to Pin 5 of P6001 on the TV/VCR Main C.B.A. or TP49 on the CRT C.B.A.
3. Select **SUB BRIGHT** in EVR adjustment mode. Then, after making a note of the original value, adjust to the (D0).

4. Select SUB CONTRAST in EVR adjustment mode and adjust so that the level A is  $3.0 \text{ V[p-p]} \pm 0.1 \text{ V[p-p]}$ .
5. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

Fig.E7



### 7.3.9. FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT

**Purpose:**

To set the optimum Focus and Screen.

**Symptom of Misadjustment:**

The picture is out of Focus and there will be an improper screen color mix.

**Test Point :**

TP50 (CRT C.B.A.)

**Adjustment :**

FOCUS CONTROL (Flyback Transformer),  
 SCREEN CONTROL (Flyback Transformer),  
 SUB BRIGHT (EVR),  
 B DRIVE (EVR),  
 R DRIVE (EVR),  
 B CUT -OFF (EVR),  
 G CUT -OFF (EVR),  
 R CUT -OFF (EVR)

**Specification :**

Refer to descriptions below.

**INPUT :**

Video Input Jack,

## Monoscope Pattern Signal

Mode :

STOP

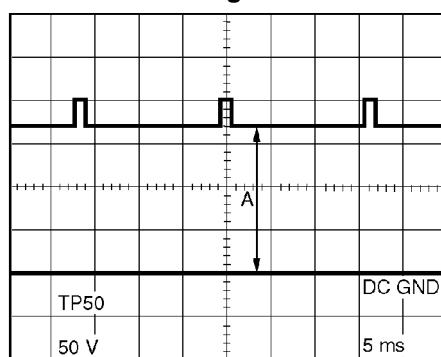
Equipment :

Oscilloscope,

NTSC Video Pattern Generator

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A.  
(Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.
5. Turn the SCREEN CONTROL on the Flyback Transformer fully counterclockwise.
6. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to [HOW TO ENTER SERVICE MODE](#).)
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is (140 VDC±5 VDC: For model with 13 inch CRT) or (170 VDC±5 VDC: For model with 20 inch CRT).

Fig.E8



8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -

**OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.**

**For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.**

- 10. Press DISPLAY key on the remote control again to return for full frame scan.**
- 11. Select SUB BRIGHT in EVR adjustment mode and adjust so that the picture has adequate brightness.**
- 12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.**

**Note:**

**Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.**

#### **7.3.10. SUB COLOR/SUB TINT ADJUSTMENT**

**Purpose:**

**To set the standard color phase.**

**Symptom of Misadjustment:**

**Color phase will be shifted.**

**Test Point :**

**Pin 5 of P6001 (TV/VCR Main C.B.A.) or TP49 (CRT C.B.A.)**

**Adjustment :**

**SUB COLOR (EVR), SUB TINT (EVR)**

**Specification :**

**C = 1.40 V[p-p]±0.15 V[p-p]**

**(For model with 13 inch CRT)**

**C = 1.50 V[p-p]±0.15 V[p-p]**

**(For model with 20 inch CRT)**

**INPUT :**

**Video Input Jack,**

**Rainbow Color Bar**

**Mode :**

**STOP**

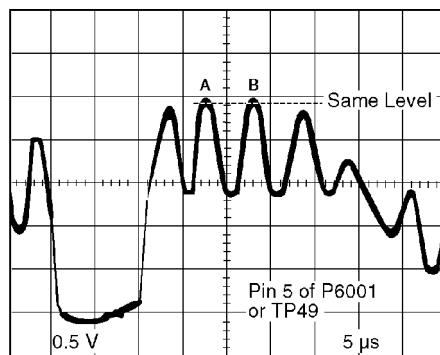
**Equipment :**

**Oscilloscope,**

**NTSC Video Pattern Generator**

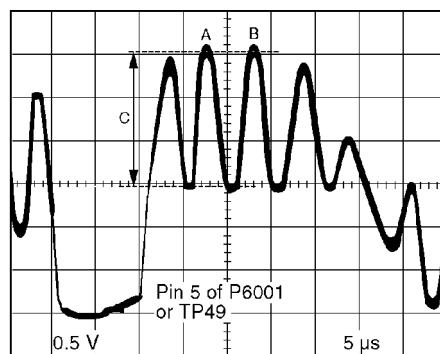
- 1. Supply the Rainbow Color Bar signal to Video Input Jack.**
- 2. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0).**
- 3. Connect the Oscilloscope to Pin 5 of P6001 on the TV/VCR Main C.B.A. or TP49 on the CRT C.B.A.**
- 4. Select SUB TINT in EVR adjustment mode and adjust so that level A and B should be equal in amplitude.**

Fig.E9-1



- 5. Select SUB COLOR in EVR adjustment mode and adjust so that the level C is  $(1.40 \text{ V[p-p]}\pm 0.15 \text{ V[p-p]})$ : For model with 13 inch CRT) or  $(1.50 \text{ V[p-p]}\pm 0.15 \text{ V[p-p]})$ : For model with 20 inch CRT).**

Fig.E9-2



- 6. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.**

<b>Note:</b> After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows. <ul style="list-style-type: none"> <li>• Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).</li> <li>• Write the same value of SUB TINT (Address 01) to VV TINT (Address 13).</li> </ul>
--

### 7.3.11. PURITY ADJUSTMENT

**Purpose:**

**To set the uniform white over the whole screen.**

**Symptom of Misadjustment:**

**The white screen will vary from area to area.**

**Test Point :**

-----

**Adjustment :**

**Pair of 4-Pole Convergence Magnet Rings,**  
**Pair of 6-Pole Convergence Magnet Rings,**  
**Pair of Purity Magnet Rings,**  
**Deflection Yoke (CRT Unit),**  
**G CUT -OFF (EVR)**

**Specification :**

**Refer to descriptions below.**

**INPUT :**

**Video Input Jack,**  
**Crosshatch Pattern Signal,**  
**White Pattern Signal**

**Mode :**

**STOP**

**Equipment :**

**Degaussing Coil,**  
**NTSC Video Pattern Generator,**  
**White Pattern Generator**

**1. Remove the wedges from the CRT.**

**2. Slide the Deflection Yoke forward to the end of the CRT neck.**

**(For model with 13 inch CRT)**

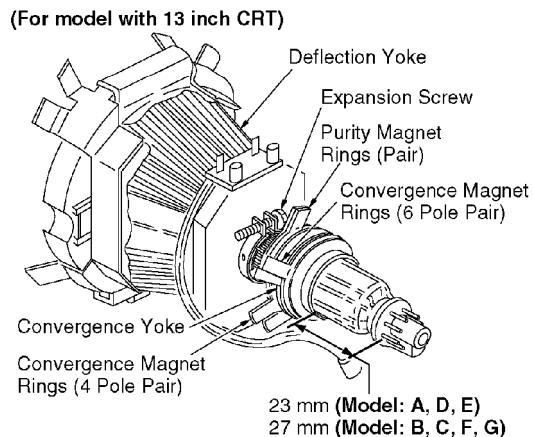
**Set the Convergence Yoke as specified.**

- 3. Power the unit "ON" and degauss the CRT by the Degaussing Coil.**
- 4. Supply the Crosshatch Pattern Signal to Video Input Jack.**
- 5. Turn the pair of 4-Pole Convergence Magnet Rings so that B and R at the center of CRT overlap each other.**
- 6. Turn the pair of 6-Pole Convergence Magnet Rings so that B and R which overlapped each other in Step 5 overlap G.**
- 7. Supply a White Pattern Signal to Video Input Jack.**
- 8. Select G CUT -OFF in EVR adjustment mode and adjust it to become to the minimum level. Turn the Pair of Purity Magnet Rings so that the distorted color areas are approximately across from each other.  
Slide the Deflection Yoke back slightly (without rotating it) until the distorted color areas disappear from the screen.**
- 9. Supply a Crosshatch Pattern Signal to Video Input Jack again. Confirm that the Center Bar is at the horizontal center line of the CRT and the V-Center Bar is at the vertical center line of the CRT. Then, tighten the Expansion Screw.**
- 10. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to [HOW TO ENTER SERVICE MODE](#).)**
- 11. Press DISPLAY key on the remote control again to return for full frame scan. Make sure that the entire screen is white. If not, adjust G DRIVE and B DRIVE in EVR adjustment mode.**

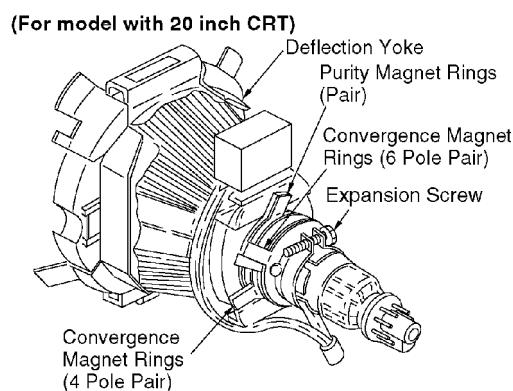
**Note:**

**Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.**

**Fig.E10-1**



**Fig.E10-2**



COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

### 7.3.12. STATIC CENTRAL CONVERGENCE ADJUSTMENT

#### Purpose:

To set the uniform convergence over the whole screen.

#### Symptom of Misadjustment:

The convergence on the screen will vary from the center portion to the surrounding edges.

#### Test Point :

-----

**Adjustment :**

**Pair of 4-Pole Convergence Magnet Rings,  
Pair of 6-Pole Convergence Magnet Rings**

**Specification :**

**Refer to descriptions below.**

**INPUT :**

**Video Input Jack,  
Crosshatch Pattern Signal,**

**Mode :**

**STOP**

**Equipment :**

**NTSC Video Pattern Generator**

- 1. Supply a Crosshatch Pattern Signal to the Video Input Jack.**
- 2. Turn the Pair of 4 - Pole Convergence Magnet Rings so that B and R, at center of CRT, overlap each other.**
- 3. Turn the Pair of 6 - Pole Convergence Magnet Rings so that B and R, that overlapped each other in step 2 overlaps G.**

### **7.3.13. DYNAMIC CONVERGENCE ADJUSTMENT**

**Purpose:**

**To set the uniform convergence over the whole screen.**

**Symptom of Misadjustment:**

**The convergence on the screen will vary at the sides of the CRT.**

**Test Point :**

-----

**Adjustment :**

**Deflection Yoke (CRT Unit)**

**Specification :**

**Refer to descriptions below.**

**INPUT :**

**Video Input Jack,  
Crosshatch Pattern Signal,  
White Pattern Signal**

**Mode :**

**STOP**

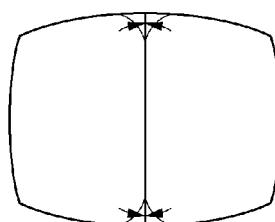
**Equipment :**

**NTSC Video Pattern Generator**

**White Pattern Generator**

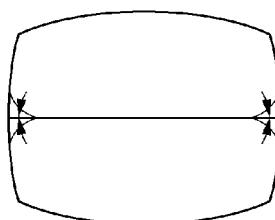
- 1. Supply a Crosshatch Pattern Signal to the Video Input Jack.**
- 2. Hold the Deflection Yoke and wiggle it up and down to produce the correct Crosshatch Pattern position.**

**Fig.E11-1**



- 3. Hold Deflection Yoke and wiggle it horizontally (right to left) to produce the correct Crosshatch Pattern position.**

**Fig.E11-2**

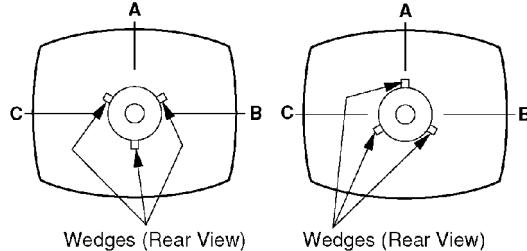


- 4. Insert three wedges to maintain the correct Crosshatch Pattern Position.**

**Fig.E11-3**

Wedge Positions

(For model with 13 inch CRT)      (For model with 20 inch CRT)



**(Confirmation of white)**

- 1. Supply a White Pattern Signal to the Video Input Jack.**
- 2. Confirm that the purity is still correct.**

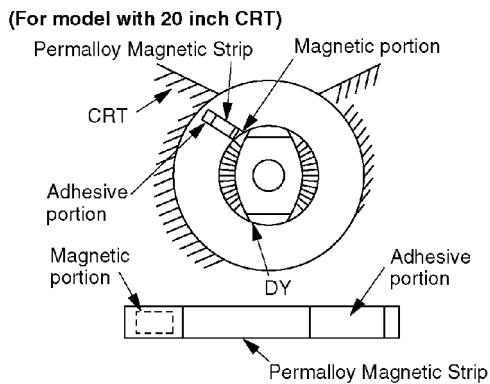
**3. If the purity is not acceptable, readjust the purity.**

**4. (For model with 20 inch CRT)**

If the convergence error is more than 1.5 mm (0.06 inch) from the green dot at each corner, adjust the convergence at that corner with a Permalloy Magnetic Strip. Insert a permalloy strip into the gap between the Deflection Yoke and the CRT along a diagonal line of the CRT bell. Adjust it for the best possible convergence. Use one Permalloy Magnetic Strip in each corner if necessary.

**Permalloy Magnetic Strip Part Number (TSM10032-2).**

**Fig.E11-4**



#### **7.3.14. V. HEIGHT/H. POSITION ADJUSTMENT**

**Purpose:**

To set the standard vertical and horizontal picture size.

**Symptom of Misadjustment:**

The picture size is on the vertical and horizontal axis is abnormal.

**Test Point :**

-----

**Adjustment :**

**V SIZE (EVR),**

**H CENTER (EVR),**

**V POSITION (EVR)**

**(For model with 13 inch CRT)**

**Specification :**

Refer to descriptions below.

**INPUT :**

**Video Input Jack,**

## Monoscope Pattern Signal

**Mode :**

**STOP**

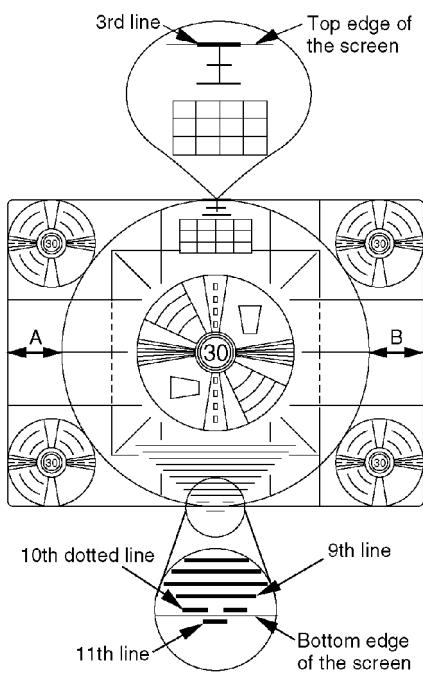
**Equipment :**

**NTSC Video Pattern Generator**

(For model with 13 inch CRT)

- 1. Supply a Monoscope Pattern Signal to the Video Input Jack.**
- 2. Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.**
- 3. Select V SIZE in EVR adjustment mode and adjust so that the top 3rd line is just in view.**
- 4. Confirm that the 10th dotted line is in view and that the 11th line is out of view.**  
If the line are not positioned correctly, select V POSITION in adjustment mode and adjust correctly.

**Fig.E12-1**

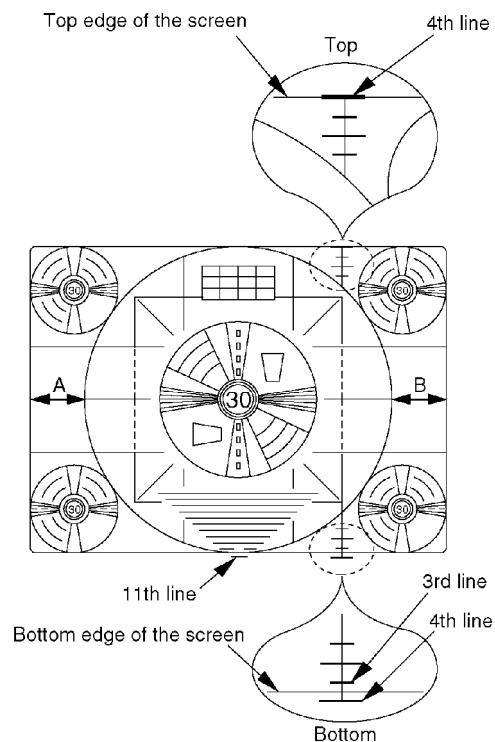


(For model with 20 inch CRT)

- 1. Supply a Monoscope Pattern Signal to the Video Input Jack.**
- 2. Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.**

- 3. Select V SIZE in EVR adjustment mode and adjust so that the top 4th line is just in view.**
- 4. Confirm that the bottom 3rd line is in view and that the bottom 4th line is out of view.**

**Fig.E12-2**



### **7.3.15. WHITE BALANCE ADJUSTMENT**

**Purpose:**

**To set the standard white level for each color temperature.**

**Symptom of Misadjustment:**

**White becomes bluish or reddish.**

**Test Point :**

**TP50 (CRT C.B.A)**

**Adjustment :**

**FOCUS CONTROL (Flyback Transformer),  
SCREEN CONTROL (Flyback Transformer),  
SUB BRIGHT (EVR),  
G DRIVE (EVR),  
B DRIVE (EVR),**

**R CUT -OFF (EVR),  
G CUT -OFF (EVR),  
B CUT -OFF (EVR)**

**Specification :**

Refer to descriptions below.

**INPUT :**

**Video Input Jack,  
Monoscope Pattern Signal,  
White Pattern Signal**

**Mode :**

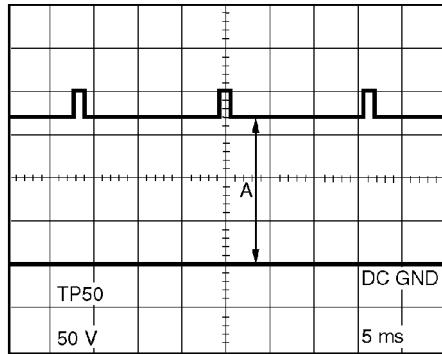
**STOP**

**Equipment :**

**NTSC Video Pattern Generator,  
White Pattern Generator,  
Oscilloscope**

- 1. Supply a Monoscope Pattern Signal to the Video Input Jack.**
- 2. Connect the Oscilloscope to TP50 on the CRT C.B.A.  
(Use TP47 for GND.)**
- 3. Select SUB BRIGHT and move the shaded area to the value in EVR  
adjustment mode.**
- 4. Adjust the FOCUS CONTROL on the Flyback Transformer so that  
the center of picture is the sharpest.**
- 5. Press DISPLAY key (Service Switch) on the remote control for  
collapse scan. (Refer to [HOW TO ENTER SERVICE MODE.](#))**
- 6. Turn the SCREEN CONTROL on Flyback Transformer fully  
counterclockwise.**
- 7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is  
(140 VDC±5 VDC: For model with 13 inch CRT) or (170 VDC±5 VDC  
For model with 20 inch CRT).**

Fig.E13



8. Turn the **SCREEN CONTROL** on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.  
For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.
10. Supply a White Pattern Signal to the Video Input Jack.
11. Press **DISPLAY** key on the remote control again to return for full frame scan.
12. Select **G DRIVE** and **B DRIVE** in EVR adjustment mode and adjust so that the entire screen is white.
13. Select **SUB BRIGHT** in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0) and while turning **SUB BRIGHT** value from minimum (C0) up to maximum (3F), confirm that the screen is tracking the White Pattern properly. Repeat the above steps 5, 9, 11, and 12 until the screen is properly tracking the White Pattern.

**Note:**

Before pressing **DISPLAY** key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

#### 7.3.16. SUB BRIGHTNESS ADJUSTMENT

**Purpose:**

To set the optimum brightness level.

**Symptom of Misadjustment:**

The picture is too white or too black.

**Test Point :**

-----

**Adjustment :**

**SUB BRIGHT (EVR)**

**Specification :**

Refer to descriptions below.

**INPUT :**

-----

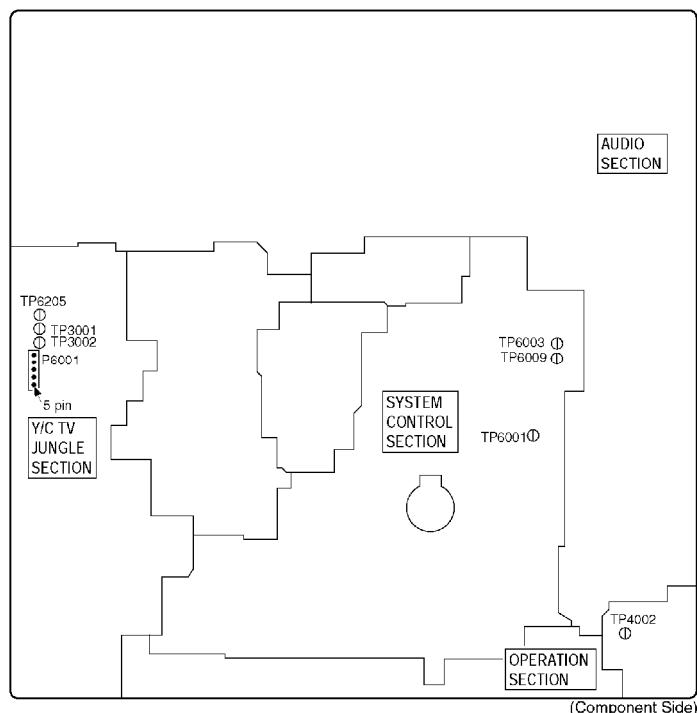
**Mode :**

**STOP**

1. Do not input any signal to the unit.
2. Set INPUT SELECT item to LINE in SET UP TV menu to display black screen.
3. Select SUB BRIGHT in EVR adjustment mode, and adjust so that the black screen starts to turn grey (lighting only).

#### **7.4. TEST POINTS AND CONTROL LOCATION**

**TV/VCR Main C.B.A. (For model with 13 inch CRT)**

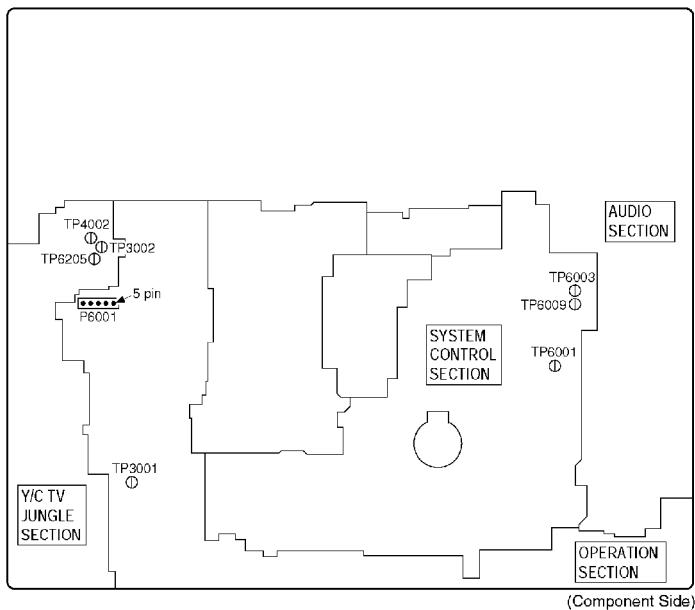


FUNCTION OF IMPORTANT TEST POINTS	
TP3001	Video Signal
TP3002	REC/PB Video envelope signal
TP4002	Normal Audio signal
TP6001	Service Test Point (inhibit sensors)
TP6003	Defeat Auto tracking function (connect to +5V(TP6009))
TP6009	+5V
TP6205	Head SW.

**Test Point Information**

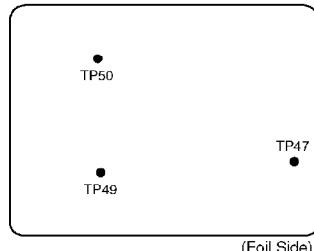
- Test Point with a Test Pin.
- Test Point with a jumper wire across a hole in the P.C.B.
- Test Point with no Test Pin.

**TV/VCR Main C.B.A. (For model with 20 inch CRT)**



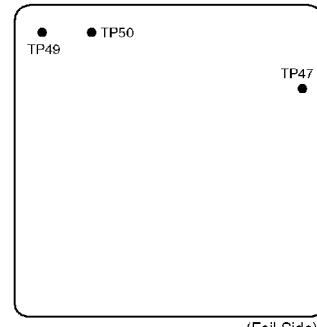
(Component Side)

**CRT C.B.A.  
(For model with 13 inch CRT)**



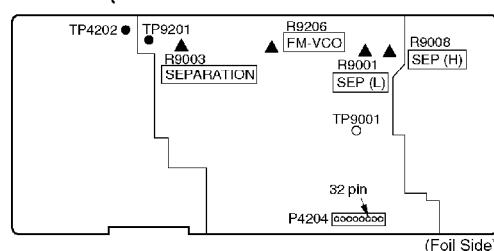
(Foil Side)

**CRT C.B.A.  
(For model with 20 inch CRT)**



(Foil Side)

**Audio C.B.A. (For model with TV STEREO/Hi-Fi AUDIO)**



(Foil Side)

## 8. SCHEMATIC DIAGRAMS

### 8.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

### 8.2. MAIN SCHEMATIC DIAGRAM

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C1341, PV-C1351W)

(Model: PV-C2011, PV-C2021, PV-C2031W, VV-2001, PV-C2061)

### 8.3. AUDIO SCHEMATIC DIAGRAM

(Model: PV-C2061)

## **8.4. CAPSTAN STATOR SCHEMATIC DIAGRAM**

## **8.5. HEAD AMP SCHEMATIC DIAGRAM**

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C2011, PV-C2021, PV-C2031W, VV-2001)

(Model: PV-C1341, PV-C1351W, PV-C2061)

## **8.6. CRT SCHEMATIC DIAGRAM**

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C1341, PV-C1351W)

(Model: PV-C2011, PV-C2021, PV-C2031W, VV-2001, PV-C2061)

## **8.7. INTERCONNECTION SCHEMATIC DIAGRAM**

## **8.8. SIGNAL WAVEFORMS**

## **8.9. VOLTAGE CHART**

# **9. CIRCUIT BOARD LAYOUT**

## **9.1. TV/VCR MAIN C.B.A.**

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C1341, PV-C1351W)

(Model: PV-C2011, PV-C2021, PV-C2031W, VV-2001, PV-C2061)

## **9.2. AUDIO C.B.A.**

(Model: PV-C2061)

## **9.3. CAPSTAN STATOR C.B.A.**

## **9.4. HEAD AMP C.B.A.**

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C2011, PV-C2021, PV-C2031W, VV-2001)

(Model: PV-C1341, PV-C1351W, PV-C2061)

## **9.5. CRT C.B.A.**

(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C1341, PV-C1351W)

(Model: PV-C2011, PV-C2021, PV-C2031W, VV-2001, PV-C2061)

# **10. BLOCK DIAGRAMS**

## **10.1. POWER SUPPLY BLOCK DIAGRAM**

## **10.2. VIDEO SIGNAL PATH BLOCK DIAGRAM**

## **10.3. AUDIO SIGNAL PATH BLOCK DIAGRAM**

## **10.4. MTS/SAP AUDIO /AUDIO AMP BLOCK DIAGRAM**

(Model: PV-C2061)

**10.5. SYSTEM CONTROL BLOCK DIAGRAM**

**10.6. SERVO BLOCK DIAGRAM**

**10.7. TV/YC PROCESS BLOCK DIAGRAM**

**11. EXPLODED VIEWS**

**11.1. MECHANISM (TOP) SECTION**

## 1 MECHANISM (TOP) SECTION

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

H

G

F

E

D

C

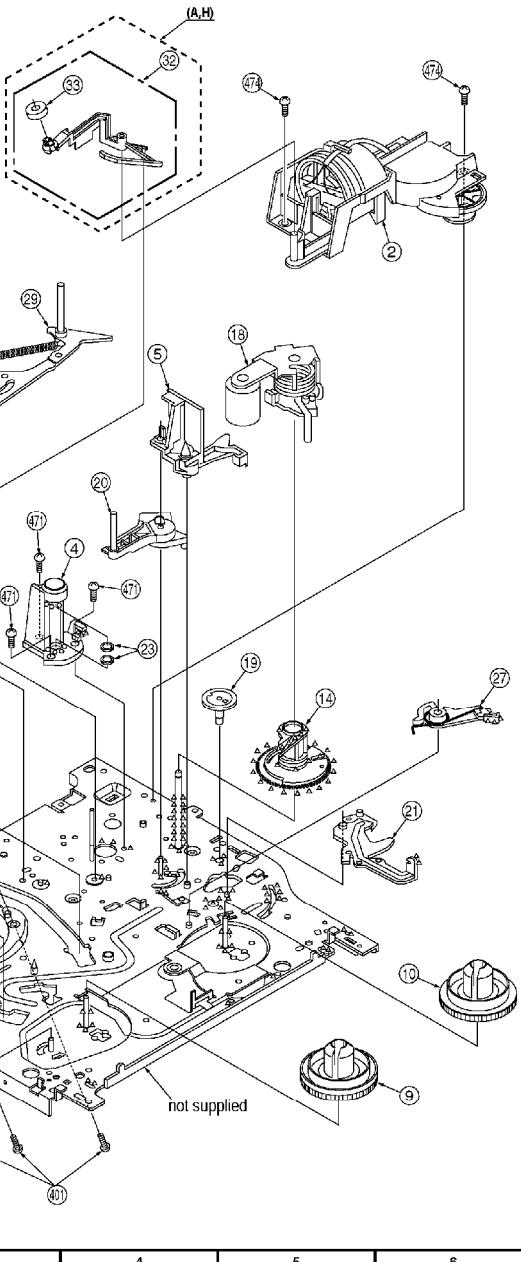
B

A

LUBRICATION POINTS  
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

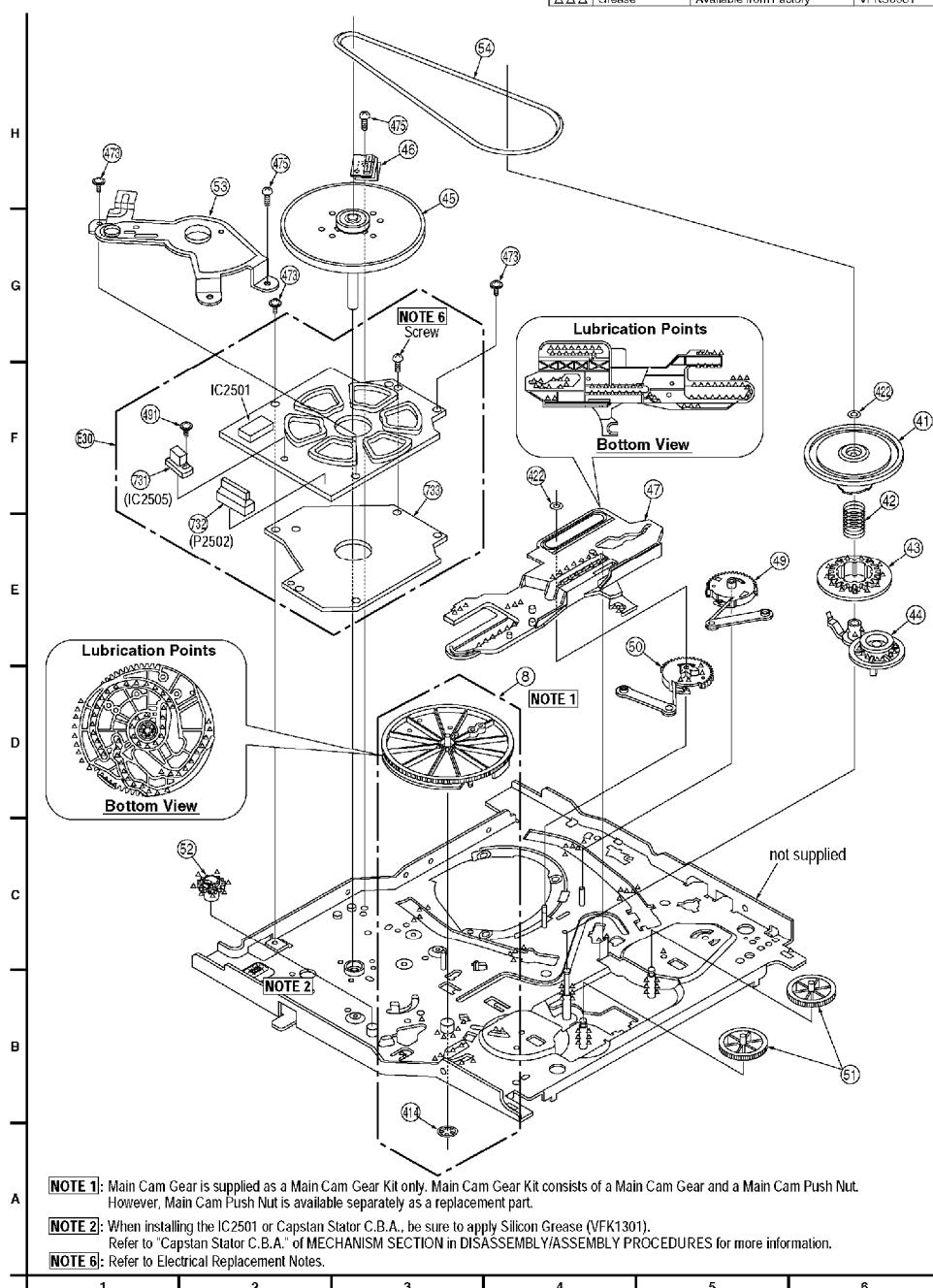
Mark	Kind of Lubricant	Availability	Part Number
○○○	Spindle Oil	Purchase from Local Supplier	-----
△△△	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied.  
And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



## ② MECHANISM (BOTTOM) SECTION

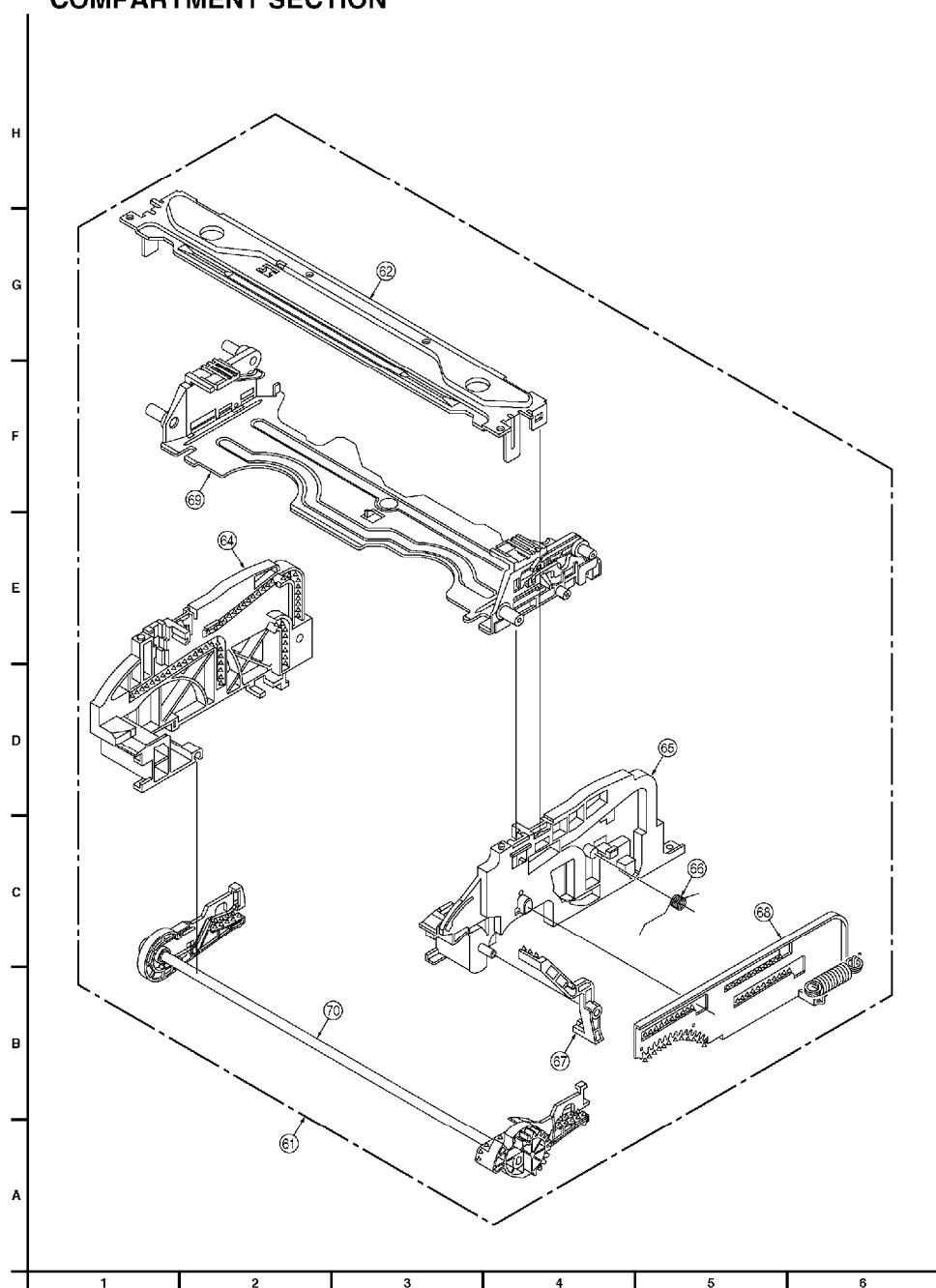
LUBRICATION POINTS			
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.			
Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
△△△	Grease	Available from Factory	VFKS0081



### ③ CASSETTE UP COMPARTMENT SECTION

LUBRICATION POINTS  
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

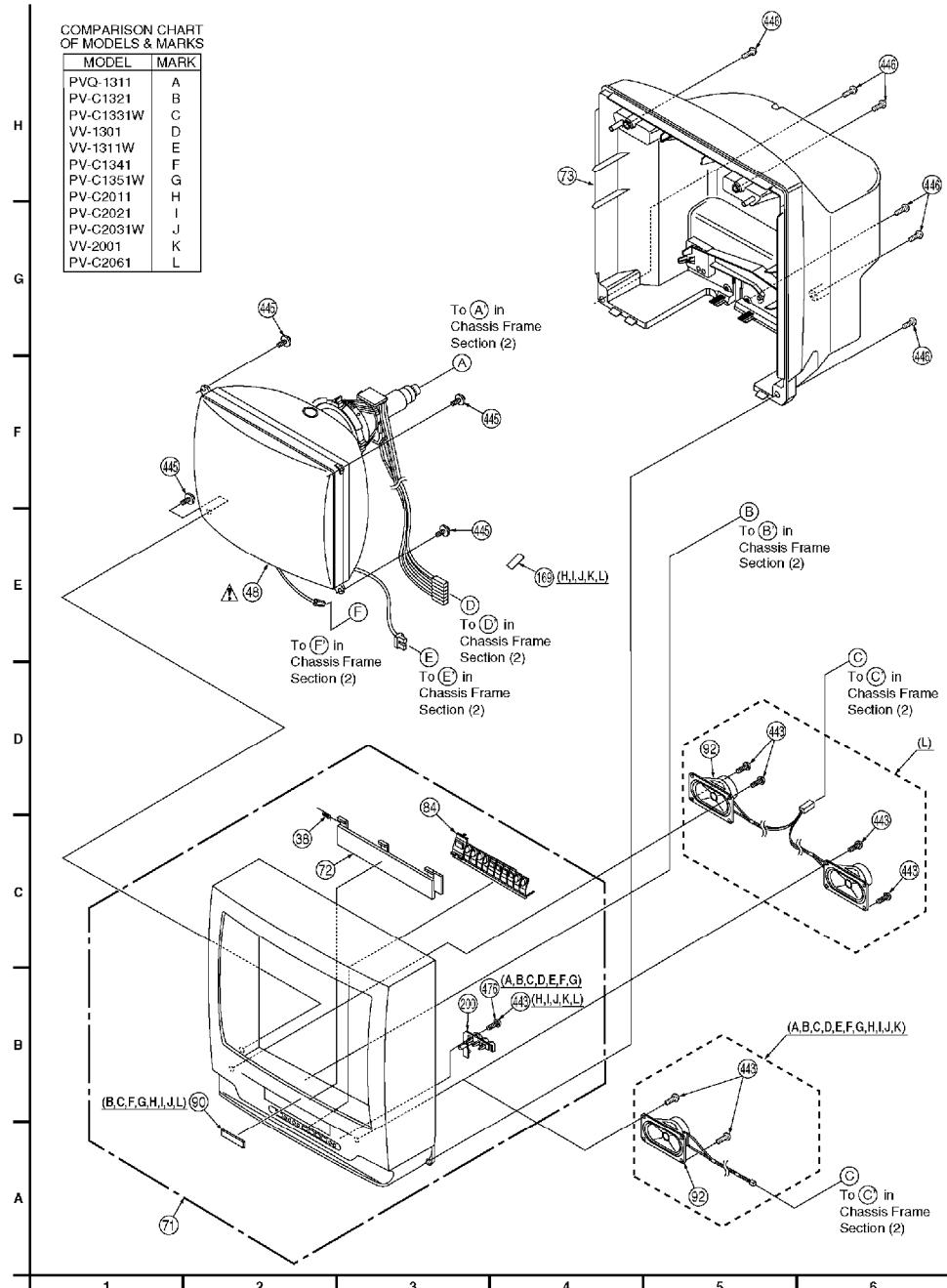
Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081



#### 11.4. CHASSIS FRAME SECTION (1)

## ④ CHASSIS FRAME SECTION (1)

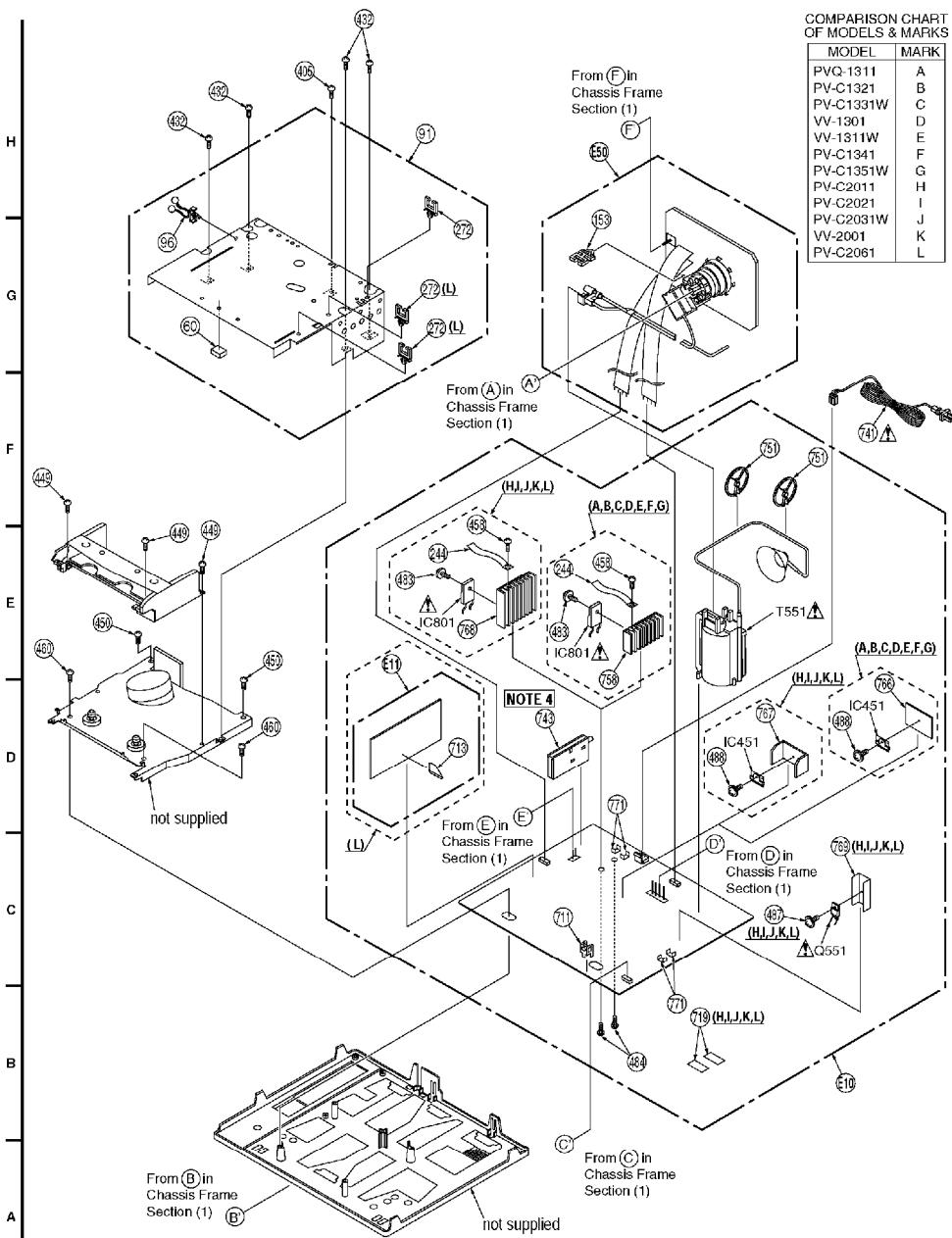
**IMPORTANT SAFETY NOTICE**  
COMPONENTS IDENTIFIED BY THE SIGN HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



## ⑤ CHASSIS FRAME SECTION (2)

**IMPORTANT SAFETY NOTICE**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

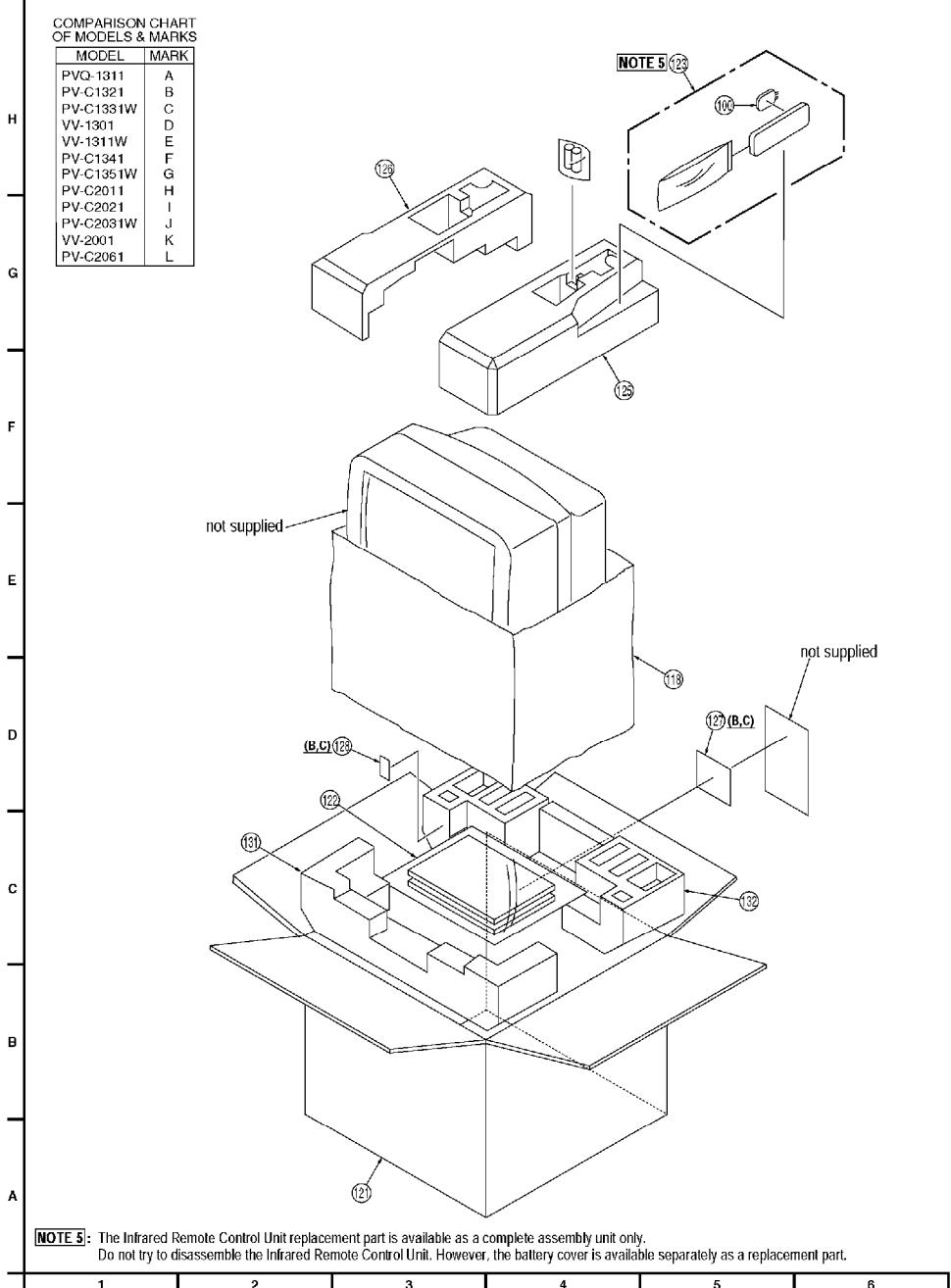


**NOTE 4:** Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

## **11.6. PACKING PARTS AND ACCESSORIES SECTION**

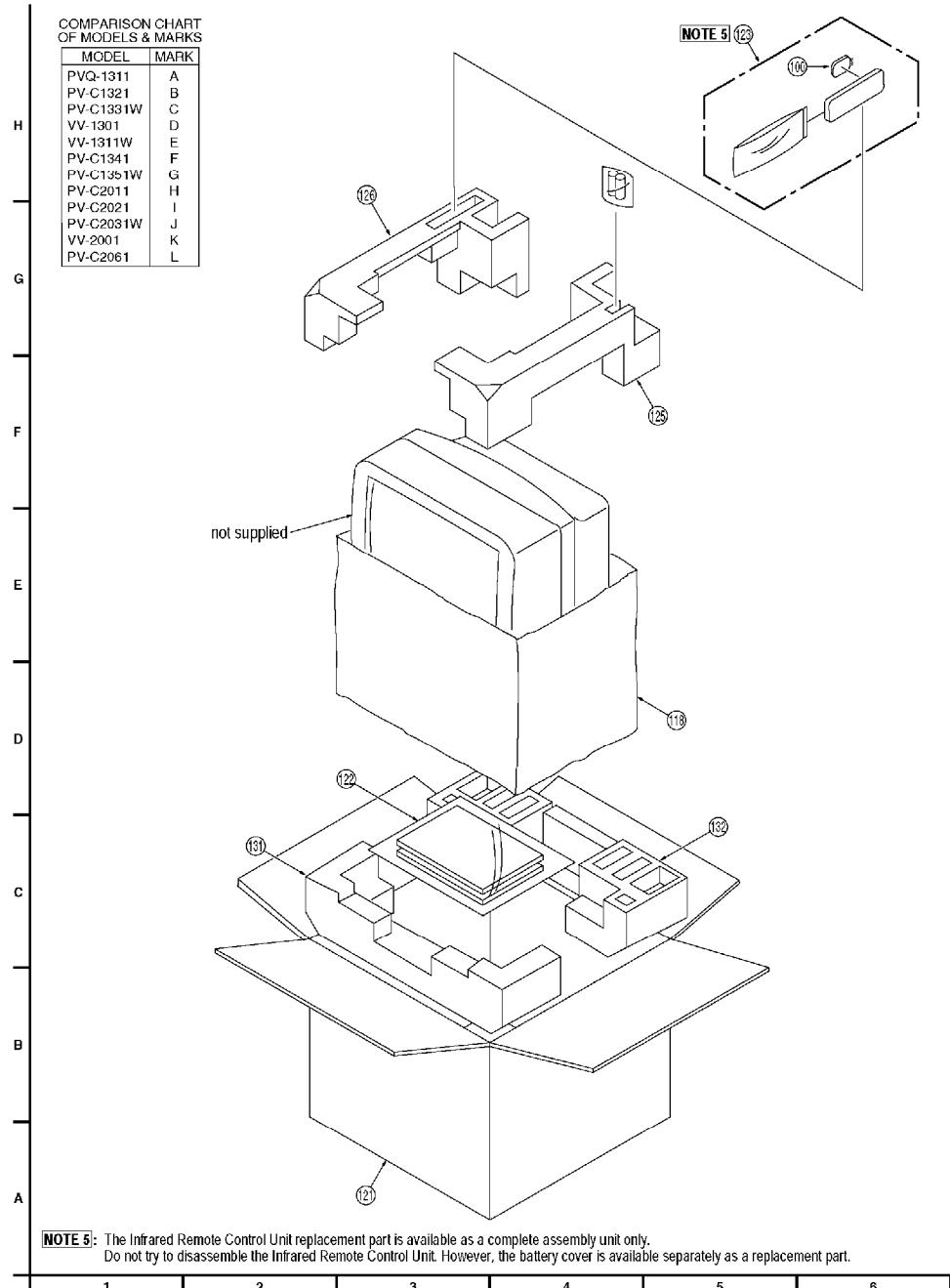
(Model: PVQ-1311, PV-C1321, PV-C1331W, VV-1301, VV-1311W, PV-C1341, PV-C1351W)

## ⑥ PACKING PARTS AND ACCESSORIES SECTION (Model: A, B, C, D, E, F, G)



(Model: PV-C2011, PV-C2021, PV-C2031W, VV-2001, PV-C2061)

## ⑥ PACKING PARTS AND ACCESSORIES SECTION (Model: H, I, J, K, L)



## 12. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

### 12.1. REPLACEMENT NOTES

#### 12.1.1. General Notes

##### 1. Use only original replacement parts:

**To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.**

**2. IMPORTANT SAFETY NOTICE**

Components identified by the sign  have special characteristics important for safety. When replacing any of these components, use only the specified parts.

**3. SPECIAL NOTE**

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

**4. Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied.**

And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

**5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**

**6. All of parts are supplied from MKA.**

**7. Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.**

**12.1.2. Mechanical Replacement Notes**

- 1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
- 2. Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.**
- 3. The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.**
- 4. Main Cam Push Nut (Ref. No. 414) is not reusable.**

If removed, install a new one.

#### **12.1.3. Electrical Replacement Notes**

##### **1. Unless otherwise specified;**

All resistors are in  $\Omega$ , K = 1,000  $\Omega$ , M = 1,000 k  $\Omega$ .

##### **2. Abbreviation**

**RTL:** Retention Time Limited

This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

**NR:** Non Repairable Board Ass'y

**MGF CHIP:** Metal Glaze Film Chip

**C CHIP:** Ceramic Chip

**COMPLX CMP:** Complex Component

**W FLMPRF:** Wirewound Flameproof

**C.B.A.:** Circuit Board Assembly

**P.C.B.:** Printed Circuit Board

**E.S.D.:** Electrostatically Sensitive Devices

##### **3. SERVICE OF CHIP PARTS**

When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "**IC, TRANSISTOR AND CHIP PART INFORMATION**" page.

##### **4. When replacing 0 $\Omega$ resistor, a wire can be substituted for it.**

##### **5. When installing the IC2501 (AN3846SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ ASSEMBLY PROCEDURES.**

##### **6. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. 743) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/ VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.**

##### **7. EEP ROM IC (IC6004), TV/VCR MAIN C.B.A. replacement note: After replacing EEP ROM IC (IC6004) or TV/VCR MAIN C.B.A., be sure to write the initial data with remote control.**

**8. The Capstan Stator C.B.A. (Ref. No. E30) as a service part is supplied with the Screw installed on it. Please note that there is no functional difference between the units with or without the Screw.**

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

## 12.2. MECHANICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	VBSS0033	FULL ERASE HEAD	1
2	VXKS0901	MOTOR BLOCK UNIT	1
3	LSDB0045	TENSION ARM BOSS	1
4	VXDS0212	CAPSTAN HOLDER UNIT	1
5	LSMD0209	OPENER PIECE	1
8	VVGS0009	MAIN CAM GEAR KIT	2
9	LSDR0002	S REEL TABLE	1
10	LSDR0003	T REEL TABLE	1
11	VEGS0453	CYLINDER UNIT ( A,B,C,D,E,H,I,J,K )	1
11	VEGS0454	CYLINDER UNIT ( F,G,L )	1
12	VEHS0596	AUDIO CONTROL/ERASE HEAD UNIT	1
14	LSDG0112	LIFT GEAR	1
16	VXDS0213	LOADING POST BASE-S UNIT	1
17	VXDS0214	LOADING POST BASE-T UNIT	1
18	VXLS1094	PINCH ARM UNIT	1
19	LSDG0110	INTERMEDIATE GEAR A	1
20	VXLS1101	P5 ARM UNIT	1
21	LSML0131	DRIVE RACK ARM	1
22	VXLS1103	TENSION CONTROL ARM UNIT	1
23	LSMX0129	OIL SEAL	1
27	VXLS1100	T BRAKE UNIT	1
29	VXLS1102	TENSION ARM UNIT	1
32	VXLS1104	CLEANER ARM UNIT ( A,H )	1
33	VDPS0269	CLEANER ROLLER ( A,H )	1
38	LSMB0221	CASSETTE DOOR SPRING ( A,B,C,D,E,F,G )	4
38	LSMB0230	CASSETTE DOOR SPRING ( H,J,K,L )	4

Ref. No.	Part No.	Part Name & Description	Remarks
<u>41</u>	VXPS0389	CENTER CLUTCH UNIT	2
<u>42</u>	VMBS1151	CHANGING GEAR SPRING	2
<u>43</u>	LSDG0114	CHANGING GEAR	2
<u>44</u>	VXLS1091	IDLER ARM UNIT	2
<u>45</u>	VXPS0391	CAPSTAN ROTOR UNIT	2
<u>46</u>	LSMA0387	STOPPER ANGLE	2
<u>47</u>	LSMM0003	MAIN ROD	2
<u>48</u>	LXQVB02131	COLOR PICTURE TUBE UNIT ( A,D,E )	▲ 4
48	LXQVB01131	COLOR PICTURE TUBE UNIT ( B,C,F,G )	▲ 4
48	LXQVB01201	COLOR PICTURE TUBE UNIT ( H,I,J,K,L )	▲ 4
<u>49</u>	VXLS1099	S LOADING ARM UNIT	2
<u>50</u>	VXLS1098	T LOADING ARM UNIT	2
<u>51</u>	LSDG0116	REEL GEAR	2
<u>52</u>	LSDG0111	INTERMEDIATE GEAR B	2
<u>53</u>	LSMA0423	SUPPORT ANGLE	2
<u>54</u>	LSDV0007	CAPSTAN BELT SQUARE,RUBBER 2MM	2
<u>57</u>	VXSS0010	GROUNDING PLATE UNIT	1
<u>60</u>	VMFS0311	CUSHION	5
<u>61</u>	VXYS1347	CASSETTE UP ASS'Y	3
<u>62</u>	LSMA0352	TOP PLATE	3
<u>64</u>	LSMD0174	SIDE PLATE L	3
<u>65</u>	LSMD0173	SIDE PLATE R	3
<u>66</u>	LSMB0218	SUPPORT SPRING	3
<u>67</u>	LSML0096	OPENER LEVER	3
<u>68</u>	VXLS1111	DRIVE RACK UNIT	3
<u>69</u>	VXAS4423	HOLDER UNIT	3
<u>70</u>	VXLS1110	WIPER ARM UNIT	3
<u>71</u>	LXQKY01130	FRONT CABINET ASS'Y ( A )	4
71	LXQKY02130	FRONT CABINET ASS'Y ( B )	4
71	LXQKY03130	FRONT CABINET ASS'Y ( C )	4
71	LXQKY06130	FRONT CABINET ASS'Y ( D )	4
71	LXQKY07130	FRONT CABINET ASS'Y ( E )	4
71	LXQKY04130	FRONT CABINET ASS'Y ( F )	4
71	LXQKY05131	FRONT CABINET ASS'Y ( G )	4
71	LXQKY01201	FRONT CABINET ASS'Y ( H )	4
71	LXQKY02201	FRONT CABINET ASS'Y ( I )	4
71	LXQKY03201	FRONT CABINET ASS'Y ( J )	4
71	LXQKY06200	FRONT CABINET ASS'Y ( K )	4
71	LXQKY04200	FRONT CABINET ASS'Y ( L )	4
<u>72</u>	LKK688041A	CASSETTE DOOR-LID ( A )	4
72	LKK688043A	CASSETTE DOOR-LID ( B )	4
72	LKK688044A	CASSETTE DOOR-LID ( C )	4
72	LSKF0300	CASSETTE DOOR-LID ( D )	4
72	LKK688042A	CASSETTE DOOR-LID ( E )	4
72	LKK688039A	CASSETTE DOOR-LID ( F )	4
72	LKK688040A	CASSETTE DOOR-LID ( G )	4
72	LSKF0365	CASSETTE DOOR-LID ( H )	4
72	LSKF0354	CASSETTE DOOR-LID ( I )	4
72	LSKF0355	CASSETTE DOOR-LID ( J )	4
72	LKK688048A	CASSETTE DOOR-LID ( K )	4
72	LSKF0292	CASSETTE DOOR-LID ( L )	4
<u>73</u>	LKV60601A	REAR COVER ( A,B,D,F )	4
73	LKV60602B	REAR COVER ( C,E,G )	4

Ref. No.	Part No.	Part Name & Description	Remarks
73	LKV60501A	REAR COVER ( H,I,K )	4
73	LKV60505B	REAR COVER ( J )	4
73	LXQKV1209P	REAR COVER UNIT ( L )	4
84	LBY61045B	OPERATION BUTTON ( A,D )	4
84	LBY61044B	OPERATION BUTTON ( B,F,H,I,L )	4
84	LBX61072B	OPERATION BUTTON ( C,G,J )	4
84	LBX61076B	OPERATION BUTTON ( E )	4
84	LBX61074B	OPERATION BUTTON ( K )	4
90	TBM153023	BADGE,ABS RESIN ( B,C,F,G )	4
90	TBM153022	BADGE,ABS RESIN ( H,I,J,L )	4
91	LXQUS01131K	TOP SHIELD PLATE ASS'Y ( A,B,C,D,E,F,G )	5
91	LXQUS01201K	TOP SHIELD PLATE ASS'Y ( H,I,J,K )	5
91	LXQUS04201K	TOP SHIELD PLATE ASS'Y ( L )	5
92	LXQAS01J13	SPEAKER UNIT ( A,B,C,D,E,F,G,H,I,J,K )	4
92	LXQAS1301S	SPEAKER UNIT ( L )	4
96	LML69002A	CLAMPER	5
100	LSKF0360	BATTERY COVER ( A,H )	6
100	LSKF0361	BATTERY COVER ( B,F )	6
100	LSKF0362	BATTERY COVER ( C,G )	6
100	LSKF0363	BATTERY COVER ( D,K )	6
100	LSKF0364	BATTERY COVER ( E )	6
100	VKFS2235	BATTERY COVER ( I,L )	6
100	VKFS2237	BATTERY COVER ( J )	6
118	LPE64003A	BAG,POLYETHYLENE ( A,B,C,D,E,F,G )	6
118	LPE64004A	BAG,POLYETHYLENE ( H,I,J,K,L )	6
121	LSPG1023	PACKING CASE,PAPER ( A )	6
121	LSPG1024	PACKING CASE,PAPER ( B )	6
121	LSPG1025	PACKING CASE,PAPER ( C )	6
121	LSPG1028	PACKING CASE,PAPER ( D )	6
121	LSPG1029	PACKING CASE,PAPER ( E )	6
121	LSPG1026	PACKING CASE,PAPER ( F )	6
121	LSPG1027	PACKING CASE,PAPER ( G )	6
121	LSPG1031	PACKING CASE,PAPER ( H )	6
121	LSPG1032	PACKING CASE,PAPER ( I )	6
121	LSPG1033	PACKING CASE,PAPER ( J )	6
121	LSPG1030	PACKING CASE,PAPER ( K )	6
121	LSPG1034	PACKING CASE,PAPER ( L )	6
122	LSQF0343	FAN BAG ( A )	6
122	LSQF0344	FAN BAG ( B,C,F,G )	6
122	LSQF0348	FAN BAG ( D,E,K )	6
122	LSQF0333	FAN BAG ( H )	6
122	LSQF0334	FAN BAG ( I,J )	6
122	LSQF0332	FAN BAG ( L )	6
123	LSSQ0280	INFRARED REMOTE CONTROL UNIT ( A,H )	6
123	LSSQ0281	INFRARED REMOTE CONTROL UNIT ( B,F )	6
123	LSSQ0282	INFRARED REMOTE CONTROL UNIT ( C,G )	6
123	LSSQ0283	INFRARED REMOTE CONTROL UNIT ( D,K )	6
123	LSSQ0284	INFRARED REMOTE CONTROL UNIT ( E )	6
123	LSSQ0278	INFRARED REMOTE CONTROL UNIT ( I )	6
123	LSSQ0279	INFRARED REMOTE CONTROL UNIT ( J )	6
123	LSSQ0276	INFRARED REMOTE CONTROL UNIT ( L )	6
125	LPJ61029A	TOP CUSHION RIGHT,STYROFOAM ( A,B,C,D,E,F,G )	6
125	LPJ61028A	TOP CUSHION RIGHT,STYROFOAM ( H,I,J,K,L )	6
126	LPJ61030A	TOP CUSHION LEFT,STYROFOAM ( A,B,C,D,E,F,G )	6

Ref. No.	Part No.	Part Name & Description	Remarks
126	LPJ61027A	TOP CUSHION LEFT,STYROFOAM ( H,I,J,K,L )	6
<u>127</u>	837924	CHECK POINT LABEL ( B,C )	6
<u>128</u>	ZLDRS1	SECURITY TAG ( B,C )	6
<u>131</u>	LPJ62029A	BOTTOM CUSHION FRONT,STYROFOAM ( A,B,C,D,E,F,G )	6
131	LPJ62027A	BOTTOM CUSHION FRONT,STYROFOAM ( H,I,J,K,L )	6
<u>132</u>	LPJ62030A	BOTTOM CUSHION REAR,STYROFOAM ( A,B,C,D,E,F,G )	6
132	LPJ62028A	BOTTOM CUSHION REAR,STYROFOAM ( H,I,J,K,L )	6
<u>153</u>	TMM7443-1	CLAMPER	5
<u>169</u>	TSM10032-2	PERMALLOY MAGNETIC STRIP ( H,I,J,K,L )	4
<u>200</u>	LKK683011A	PANEL LIGHT ( A,D,E )	4
200	LKK683010A	PANEL LIGHT ( B,C,F,G )	4
200	LKK683009A	PANEL LIGHT ( H,I,J,L )	4
200	LKK683013A	PANEL LIGHT ( K )	4
<u>244</u>	TUX77809	CLAMPER	5
<u>272</u>	TMM77412	CLAMPER	5
<u>401</u>	VHDS0475	SCREW,STEEL	1
<u>405</u>	VHDS0496	SCREW W/WASHER,STEEL	5
<u>410</u>	VHDS0498	SCREW W/WASHER,STEEL	1
<u>414</u>	VHNS0070	MAIN CAM PUSH NUT,STEEL	2
<u>422</u>	XWGV2D5G	WASHER,NYLON	2
<u>424</u>	XYC26+SF6J	SCREW W/WASHER,STEEL	1
<u>430</u>	XTV26+6FFZJ	TAPPING SCREW,STEEL	1
<u>432</u>	XTV3+8JR	TAPPING SCREW,STEEL	5
<u>443</u>	XTV4+12A	TAPPING SCREW,STEEL	4
<u>445</u>	THE492-4	SCREW W/WASHER,STEEL ( A,B,C,D,E,F,G )	4
445	LHT60002Y	SCREW,STEEL ( H,I,J,K,L )	4
<u>446</u>	XTV4+16A	TAPPING SCREW,STEEL	4
<u>449</u>	VHDS0493	TAPPING SCREW,STEEL	5
<u>450</u>	VHDS0309	SCREW,STEEL	5
<u>458</u>	XTV3+8J	TAPPING SCREW,STEEL	5
<u>460</u>	XTN4+12A	TAPPING SCREW,STEEL	5
<u>471</u>	XSN26+5	SCREW,STEEL	1
<u>473</u>	XYN26+C6	SCREW W/WASHER,STEEL	2
<u>474</u>	LSHD0056	TAPPING SCREW,STEEL	1
<u>475</u>	XTV26+5FJ	TAPPING SCREW,STEEL	2
<u>476</u>	XTV3+12G	TAPPING SCREW,STEEL ( A,B,C,D,E,F,G )	4
<u>483</u>	XYN3+F10S	SCREW W/WASHER,STEEL	5
<u>484</u>	XTW3+10J	TAPPING SCREW,STEEL	5
<u>487</u>	XYN3+J8	SCREW W/WASHER,STEEL	5
<u>488</u>	XYN3+F6S	SCREW W/WASHER,STEEL	5
<u>491</u>	XYN2+J7	SCREW W/WASHER,STEEL	2
<u>711</u>	PNA4611M00HC	INFRARED RECEIVER UNIT	5
<u>713</u>	VMAS1912	P.C.B. SUPPORT ANGLE	5
<u>719</u>	VMFS0136	SHEET,NYLON-RAYON	5
<u>731(IC2505)</u>	EZMPS300F12	MR HEAD	2
<u>732(P2502)</u>	LSJS0097	CONNECOR 12P	2
<u>733</u>	LSMA0384	BACK PLATE,STEEL	2
<u>741</u>	LSJA0362	AC CORD W/PLUG,120V ( A,B,D,F,H,I,K,L )	▲ 5
741	LSJA0343	AC CORD W/PLUG,120V ( A,B,D,F,H,I,K,L )	▲ 5
741	LSJA0363	AC CORD W/PLUG,120V ( C,E,G,J )	▲ 5
741	LSJA0344	AC CORD W/PLUG,120V ( C,E,G,J )	▲ 5
<u>743</u>	ENG36706G	TUNER,UHF/VHF NR ( A,D,E,H,K )	5
743	ENG36709G	TUNER,UHF/VHF NR ( B,C,F,G,I,J,L )	5

Ref. No.	Part No.	Part Name & Description	Remarks
<u>751</u>	LML69001A	ANODE LEAD CLAMPER	5
<u>758</u>	TUC77616	HEAT SINK	5
<u>766</u>	TUC76677-1	HEAT SINK	5
<u>767</u>	TUC77626	HEAT SINK	5
<u>768</u>	TUC77603-1	HEAT SINK	5
<u>769</u>	LUS23005B	HEAT SINK	5
<u>771</u>	EYF52BC	FUSE HOLDER	5
<u>E10</u>	VEPS3098C	TV/VCR MAIN C.B.A. ( A,D,E )	5 E.S.D. RTL
E10	VEPS3098B	TV/VCR MAIN C.B.A. ( B,C )	5 E.S.D. RTL
E10	VEPS3098A	TV/VCR MAIN C.B.A. ( F,G )	5 E.S.D. RTL
E10	VEPS3096C	TV/VCR MAIN C.B.A. ( H,K )	5 E.S.D. RTL
E10	VEPS3096B	TV/VCR MAIN C.B.A. ( I,J )	5 E.S.D. RTL
E10	VEPS3096A	TV/VCR MAIN C.B.A. ( L )	5 E.S.D. RTL
<u>E11</u>	VEPS4032A	AUDIO C.B.A. ( L )	5 E.S.D. RTL
<u>E30</u>	VEMS0342	CAPSTAN STATOR C.B.A. NR	2
<u>E40</u>	VEPS5043A	HEAD AMP C.B.A ( A,B,C,D,E,H,I,J,K )	1 RTL
E40	VEPS5042A	HEAD AMP C.B.A ( F,G,L )	1 RTL
<u>E50</u>	LRP63004C	CRT C.B.A. ( A,B,C,D,E,F,G )	5 RTL
E50	LRP63022A	CRT C.B.A. ( H,I,J,K,L )	5 RTL

### SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	
	TSM10032-2	PERMALLOY MAGNETIC STRIP	

### 12.3. ELECTRICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	VEPS3098C	TV/VCR MAIN C.B.A. ( A,D,E )	E.S.D. RTL
E10	VEPS3098B	TV/VCR MAIN C.B.A. ( B,C )	E.S.D. RTL
E10	VEPS3098A	TV/VCR MAIN C.B.A. ( F,G )	E.S.D. RTL
E10	VEPS3096C	TV/VCR MAIN C.B.A. ( H,K )	E.S.D. RTL
E10	VEPS3096B	TV/VCR MAIN C.B.A. ( I,J )	E.S.D. RTL
E10	VEPS3096A	TV/VCR MAIN C.B.A. ( L )	E.S.D. RTL
E11	VEPS4032A	AUDIO C.B.A. ( L )	E.S.D. RTL
E30	VEMS0342	CAPSTAN STATOR C.B.A. NR	
E40	VEPS5043A	HEAD AMP C.B.A ( A,B,C,D,E,H,I,J,K )	RTL
E40	VEPS5042A	HEAD AMP C.B.A ( F,G,L )	RTL
E50	LRP63004C	CRT C.B.A. ( A,B,C,D,E,F,G )	RTL
E50	LRP63022A	CRT C.B.A. ( H,I,J,K,L )	RTL

### 12.3.1. TV/VCR MAIN C.B.A.

( Model: A, B, C, D, E, F, G )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR	
IC501	TLP621GR	IC, LINEAR	▲
IC501	ON3131-R	IC, LINEAR	▲
IC501	ON3131-R.KT	IC, LINEAR	▲
IC801	STR30130	IC, LINEAR	▲
IC1001	ON3131-R.KT	IC, LINEAR	▲
IC2601	AN3808K	IC, LINEAR	
IC3001	AN3479FBP-A	IC, LINEAR	
IC3201	MN3885S	IC, CCD	E.S.D.
IC4501	LA4285	IC, LINEAR	
IC5301	AN5367FB	IC, LINEAR	
IC6001	MN101D07HCA	IC, 8BIT MICROCONTROLLER	E.S.D.
IC6002	RPI-303	PHOTO INTERRUPTER	
IC6003	RPI-303	PHOTO INTERRUPTER	
IC6004	BR24C01AFWE2	IC, 1K EEP ROM	E.S.D.
IC6004	AT24C01A10SI	IC, 1K EEP ROM	E.S.D.
IC6004	KS24C011IS	IC, 1K EEP ROM	E.S.D.
IC6004	M24C01-MN6	IC, 1K EEP ROM	E.S.D.
IC6005	PST3147NR	IC, CMOS STANDARD LOGIC	E.S.D.
IC6005	RN5VS47CA-TR	IC, CMOS STANDARD LOGIC	E.S.D.
IC6005	XC61CC4702MR	IC, CMOS STANDARD LOGIC	E.S.D.

### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA733(TQ)	TRANSISTOR SI PNP	
Q431	2SA1175	TRANSISTOR SI PNP	
Q431	2SA1175(TH)	TRANSISTOR SI PNP	
Q432	2SC3311A(R)	TRANSISTOR SI NPN	
Q433	2SB1322A(R)	TRANSISTOR SI PNP	
Q434	2SC3311A(R)	TRANSISTOR SI NPN	
Q501	2SC2482KT6	TRANSISTOR SI NPN	
Q502	2SC945A(TQ)	TRANSISTOR SI NPN	
Q502	2SC2785(TH)	TRANSISTOR SI NPN	
Q502	2SC2785(TJ)	TRANSISTOR SI NPN	
Q541	2SB709A(R,S)	TRANSISTOR SI PNP CHIP	
Q542	2SD601A	TRANSISTOR SI NPN CHIP	
Q542	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q551	2SD2586LBK	TRANSISTOR SI NPN	⚠
Q571	2SD601A	TRANSISTOR SI NPN CHIP	
Q571	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q581	2SA1321TPE6	TRANSISTOR SI NPN	
Q581	2SA1767(Q)	TRANSISTOR SI NPN	
Q581	2SB1221(Q)	TRANSISTOR SI NPN	
Q801	2SC945A(TKA)	TRANSISTOR SI NPN	
Q801	2SC1684(Q,R,S)	TRANSISTOR SI NPN	
Q801	2SC2785(TE)	TRANSISTOR SI NPN	
Q801	2SC2785(TF)	TRANSISTOR SI NPN	
Q801	2SC2785(TH)	TRANSISTOR SI NPN	
Q801	2SC2785(TJ)	TRANSISTOR SI NPN	
Q801	2SC2785(TK)	TRANSISTOR SI NPN	
Q801	2SC3311A(Q,R,S)	TRANSISTOR SI NPN	
Q801	2SC945A(TPA)	TRANSISTOR SI NPN	
Q801	2SC945A(TQA)	TRANSISTOR SI NPN	
Q1001	2SC4533LP.KT	TRANSISTOR SI NPN	⚠
Q1001	2SC5130LF608	TRANSISTOR SI NPN	⚠
Q1002	2SD2259	TRANSISTOR SI NPN	
Q1002	2SD1458	TRANSISTOR SI NPN	
Q1003	2SD1819ARS	TRANSISTOR SI NPN CHIP	
Q1003	2SC4081T106R	TRANSISTOR SI NPN CHIP	
Q1004	2SB709ARS	TRANSISTOR SI PNP CHIP	
Q1004	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q1005	2SB1218ARS	TRANSISTOR SI PNP CHIP	
Q1005	2SA1576A106R	TRANSISTOR SI PNP CHIP	
Q1051	2SD2159(T)	TRANSISTOR SI NPN	
Q1051	2SD1581(T)	TRANSISTOR SI NPN	
Q1052	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q1052	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1053	2SD235800A	TRANSISTOR SI NPN CHIP	
Q1053	2SD2097TV2R	TRANSISTOR SI NPN CHIP	
Q3001	2SB709A	TRANSISTOR SI PNP CHIP	
Q3001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q3002	2SD601A	TRANSISTOR SI NPN CHIP	
Q3002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q3301	2SD601A	TRANSISTOR SI NPN CHIP	
Q3301	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q4001	2SB709A	TRANSISTOR SI PNP CHIP	
Q4001	2SA1037K146R	TRANSISTOR SI PNP CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q4002	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4003	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4101	2SD601A	TRANSISTOR SI NPN CHIP	
Q4101	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q4171	2SD601A	TRANSISTOR SI NPN CHIP	
Q4171	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5301	2SD601A	TRANSISTOR SI NPN CHIP	
Q5301	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5901	2SD2259	TRANSISTOR SI NPN	
Q5901	2SD1858-RTV2	TRANSISTOR SI NPN	
Q6001	2SB709A	TRANSISTOR SI PNP CHIP	
Q6001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6002	2SD601A	TRANSISTOR SI NPN CHIP	
Q6002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6003	2SD601A	TRANSISTOR SI NPN CHIP	
Q6003	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6004	2SB709A	TRANSISTOR SI PNP CHIP	
Q6004	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6005	2SB709A	TRANSISTOR SI PNP CHIP	
Q6005	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6006	2SD601A	TRANSISTOR SI NPN CHIP	
Q6006	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01V	DIODE SI	
D401	ERB12-01	DIODE SI	
D401	ERB12-01RKV1	DIODE SI	
D502	MA165	DIODE SI	
D502	1SS119	DIODE SI	
D502	1SS133T	DIODE SI	
D503	ERB43-04V	DIODE SI	
D503	ES1V	DIODE SI	
D504	MA4047-M	DIODE ZENER 4.7V	
D504	MA4047-H	DIODE ZENER 4.7V	
D504	RD4.7ESAB	DIODE ZENER 4.7V	
D504	RD4.7ESAB2	DIODE ZENER 4.7V	
D504	04AZ4.7ZTPA7	DIODE ZENER 4.7V	
D505	MA165	DIODE SI	
D505	1SS119	DIODE SI	
D505	1SS133T	DIODE SI	
D506	MA165	DIODE SI	
D506	1SS119	DIODE SI	
D506	1SS133T	DIODE SI	
D541	MA165	DIODE SI	
D541	1SS119	DIODE SI	
D541	1SS133T	DIODE SI	
D542	MA4180-M	DIODE ZENER 18V	
D543	MA165	DIODE SI	
D543	1SS119	DIODE SI	
D543	1SS133T	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D544	ERB43-04V	DIODE SI	
D544	ES1V	DIODE SI	
D553	ERB43-04V	DIODE SI	
D553	ES1V	DIODE SI	
D554	4148-TA	DIODE SI	
D554	MA167	DIODE SI	
D556	MA185	DIODE SI	
D558	ERB43-04V	DIODE SI	
D558	ES1V	DIODE SI	
D560	ERB43-04V	DIODE SI	
D560	ES1V	DIODE SI	
D591	TRPF5B0M050K	THERMISTOR	▲
D591	VRPSKF5JM050	THERMISTOR	▲
D801	ERC13-08V	DIODE SI	▲
D801	EM02BMV	DIODE SI	▲
D802	ERC13-08V	DIODE SI	▲
D802	EM02BMV	DIODE SI	▲
D803	ERC13-08V	DIODE SI	▲
D803	EM02BMV	DIODE SI	▲
D804	ERC13-08V	DIODE SI	▲
D804	EM02BMV	DIODE SI	▲
D805	4148-TA	DIODE SI	
D881	ERZV10V361CS	SURGE ABSORBER	▲
D882	ERZV10V361CS	SURGE ABSORBER	▲
D1001	DB105G	DIODE SI	▲
D1001	S1NB60-4101	DIODE SI	▲
D1001	S1WBA60	DIODE SI	▲
D1002	ERA18-04	DIODE SI	
D1002	EG01	DIODE SI	
D1003	ERA18-04	DIODE SI	
D1003	EG01	DIODE SI	
D1005	ERA18-04	DIODE SI	
D1005	EG01	DIODE SI	
D1006	ERC30-01L3	DIODE SI	
D1006	RU3YXLFC1	DIODE SI	
D1007	MA188	DIODE SI	
D1007	1SS244T-77	DIODE SI	
D1008	ERB81-004	DIODE SI	
D1008	RK14	DIODE SI	
D1011	MA4051N-TAKT	DIODE ZENER 5.1V	
D1012	MA858	DIODE SI	
D1012	1SS135T-77	DIODE SI	
D1013	MA165	DIODE SI	
D1013	1SS119	DIODE SI	
D1013	1SS133T	DIODE SI	
D1015	MA2180LA	DIODE ZENER 18V	▲
D1015	1N4746A-T	DIODE ZENER 18V	▲
D1015	1N4746ARL	DIODE ZENER 18V	▲

Ref. No.	Part No.	Part Name & Description	Remarks
D1016	MA165	DIODE SI	
D1016	1SS119	DIODE SI	
D1016	1SS133T	DIODE SI	
D1051	MA4110N-H	DIODE ZENER 11V	
D4171	MA165	DIODE SI	
D4171	1SS119	DIODE SI	
D4171	1SS133T	DIODE SI	
D4591	RD9.1EW	DIODE ZENER 9.1V	
D5501	MA4062-L	DIODE ZENER 6.2V	⚠
D5602	MA165	DIODE SI	
D5602	1SS119	DIODE SI	
D5602	1SS133T	DIODE SI	
D5603	MA165	DIODE SI	
D5603	1SS119	DIODE SI	
D5603	1SS133T	DIODE SI	
D6001	VEKS5708	SENSOR LED UNIT	
D6003	MA165	DIODE SI	
D6003	1SS119	DIODE SI	
D6003	1SS133T	DIODE SI	
D6005	MA165	DIODE SI	
D6005	1SS119	DIODE SI	
D6005	1SS133T	DIODE SI	
D6009	MA165	DIODE SI	
D6009	1SS119	DIODE SI	
D6009	1SS133T	DIODE SI	
D6301	SLP913C81HAB	LIGHT EMITTING DIODE RED	
D6302	SLP413C81HAB	LIGHT EMITTING DIODE ORANGE	
D6303	SLP313C81HAB	LIGHT EMITTING DIODE GREEN	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ821T	CARBON 1/4W 820	
R402	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R405	ERDS1TJ102T	CARBON 1/2W 1K	
R409	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R410	ERDS2TJ152T	CARBON 1/4W 1.5K	
R411	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R413	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R414	ERDS1FJ2R2	CARBON 1/2W 2.2	⚠
R422	ERD25FJ101P	CARBON 1/4W 100	⚠
R427	ERQ14ZJ1R5P	FUSE 1/4W 1.5	⚠
R431	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R432	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R433	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R434	ERDS2TJ103	CARBON 1/4W 10K	
R435	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R469	ERDS2TJ222T	CARBON 1/4W 2.2K	
R470	ERDS2TJ152T	CARBON 1/4W 1.5K	
R471	ERDS2TJ391T	CARBON 1/4W 390	

Ref. No.	Part No.	Part Name & Description	Remarks
R472	ERDS2TJ471T	CARBON 1/4W 470	
R473	ERDS2TJ101T	CARBON 1/4W 100	
R474	ERDS2TJ222T	CARBON 1/4W 2.2K	
R475	ERDS2TJ222T	CARBON 1/4W 2.2K	
R476	ERDS2TJ561T	CARBON 1/4W 560	
R477	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R478	ERDS2TJ332T	CARBON 1/4W 3.3K	
R481	ERDS2TJ182T	CARBON 1/4W 1.8K	
R482	ERDS2TJ150T	CARBON 1/4W 15	
R501	ERDS2TJ681T	CARBON 1/4W 680	
R502	ERDS2TJ332T	CARBON 1/4W 3.3K	
R503	ER0S2THF1052	PRECISION METAL FILM 1/4W 10.5K	▲
R503	ER0S2TKF1052	PRECISION METAL FILM 1/4W 10.5K	▲
R503	VRESR4TF1052	PRECISION METAL FILM 1/4W 10.5K	▲
R505	ERDS2TJ561T	CARBON 1/4W 560	
R509	ERDS2TJ101T	CARBON 1/4W 100	
R510	ERDS2TJ472T	CARBON 1/4W 4.7K	
R511	ERG2ANJ222H	METAL OXIDE 2W 2.2K	
R514	ERDS2TJ271T	CARBON 1/4W 270	
R515	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R516	LAR05272J09	W FLMPRF 5W 2.7K	
R519	ERDS2TJ822T	CARBON 1/4W 8.2K	
R520	ERDS2TJ562T	CARBON 1/4W 5.6K	
R524	ERDS2TJ223	CARBON 1/4W 22K	
R525	ERDS2TJ222T	CARBON 1/4W 2.2K	
R529	ERDS2TJ103	CARBON 1/4W 10K	
R531	ERDS2TJ223	CARBON 1/4W 22K	
R541	ERDS2TJ473T	CARBON 1/4W 47K	
R542	ERDS2TJ103	CARBON 1/4W 10K	
R543	ERDS2TJ472T	CARBON 1/4W 4.7K	
R545	ERDS2TJ331T	CARBON 1/4W 330	
R546	ERDS2TJ103	CARBON 1/4W 10K	
R547	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R548	ERDS2TJ104T	CARBON 1/4W 100K	
R552	ERDS2TJ273T	CARBON 1/4W 27K	
R553	ERDS2TJ102	CARBON 1/4W 1K	
R554	ERDS2TJ103	CARBON 1/4W 10K	
R555	ERDS2TJ154T	CARBON 1/4W 150K	
R556	ERDS2TJ823T	CARBON 1/4W 82K	
R557	ERG2SJ471H	METAL OXIDE 2W 470	
R558	ERG2ANJ471H	METAL OXIDE 2W 470	
R561	ERQ1CJP2R2S	FUSE 1W 2.2	▲
R571	ERDS2TJ101T	CARBON 1/4W 100	
R572	ERDS2TJ331T	CARBON 1/4W 330	
R573	ERDS2TJ221	CARBON 1/4W 220	
R574	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R581	ERDS1FJ2R2	CARBON 1/2W 2.2	▲
R582	ERDS1FJ2R7P	CARBON 1/2W 2.7	▲
R584	ERDS2TJ562T	CARBON 1/4W 5.6K	
R585	ERDS2TJ473T	CARBON 1/4W 47K	
R586	ERDS2TJ393T	CARBON 1/4W 39K	
R801	LAR03R82K02	W FLMPRF 3W 0.82	▲

Ref. No.	Part No.	Part Name & Description	Remarks
R802	ERDS1FJ103P	CARBON 1/2W 10K	⚠
R802	ERDS1FPJ103P	CARBON 1/2W 10K	⚠
R804	ERF10ZJ331	W FLMPRF 10W 330	
R805	ERDS2TJ104T	CARBON 1/4W 100K	
R806	ERQ14AJ470P	FUSE 1/4W 47	⚠
R810	ERDS2TJ103	CARBON 1/4W 10K	
R813	ERDS2TJ104T	CARBON 1/4W 100K	
R818	VRESC2TK825T	CARBON 1/2W 8.2M	⚠
R818	VRESC2TK825T	CARBON 1/2W 8.2M	⚠
R865	ERDS2TJ222T	CARBON 1/4W 2.2K	
R1003	VRESE2TJ334T	CARBON 1/2W 330K	
R1004	ERG2SJ333H	METAL OXIDE 2W 33K	
R1005	ERG1SJ560P	METAL OXIDE 1W 56	
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101T	CARBON 1/4W 100	
R1008	ERDS2TJ392T	CARBON 1/4W 3.9K	
R1010	ERD25FJ100P	CARBON 1/4W 10	⚠
R1010	ERD25FPJ100P	CARBON 1/4W 10	⚠
R1010	VRESF4FJ100P	CARBON 1/4W 10	⚠
R1011	ERD25FJ100P	CARBON 1/4W 10	⚠
R1011	ERD25FPJ100P	CARBON 1/4W 10	⚠
R1011	VRESF4FJ100P	CARBON 1/4W 10	⚠
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1025	VRESE2TJ150T	CARBON 1/2W 15	
R1051	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1052	ERDS2TJ153T	CARBON 1/4W 15K	
R1053	ERDS2TJ153T	CARBON 1/4W 15K	
R1057	ERDS2TJ331T	CARBON 1/4W 330	
R1058	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1076	VLQSH02R101K	COIL 100UH	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0T	CARBON 1/4W 1.0	
R2605	ERDS2TJ1R2T	CARBON 1/4W 1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3001	ERDS2TJ101T	CARBON 1/4W 100	
R3006	ERDS2TJ101T	CARBON 1/4W 100	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3024	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYG102V	MGF CHIP 1/10W 1K	
R3037	ERJ6GEYG102V	MGF CHIP 1/10W 1K	
R3038	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3043	ERJ6GEYG392V	MGF CHIP 1/10W 3.9K ( A,B,C,D,E )	
R3044	ERJ6GEYG682V	MGF CHIP 1/10W 6.8K ( A,B,C,D,E )	
R3045	ERJ6GEYG222V	MGF CHIP 1/10W 2.2K ( A,B,C,D,E )	
R3046	ERJ6GEYG682V	MGF CHIP 1/10W 6.8K ( A,B,C,D,E )	
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3083	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3084	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3086	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3087	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K ( A,B,C,D,E )	
R3087	ERJ6GEYJ684V	MGF CHIP 1/10W 680K ( F,G )	
R3091	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3302	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R3303	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4018	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K ( A,D,E )	
R4018	ERJ6GEYJ123V	MGF CHIP 1/10W 12K ( B,C,F,G )	
R4021	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4171	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4173	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4502	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4504	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4509	ERDS2TJ100T	CARBON 1/4W 10	
R4521	ERQ1ABJP8R2S	FUSE 1W 8.2	⚠
R4523	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4524	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4591	ERDS2TJ681T	CARBON 1/4W 680	

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Ref. No.	Part No.	Part Name & Description	Remarks
R4592	ERDS2TJ681T	CARBON 1/4W 680	
R4593	ERDS2TJ681T	CARBON 1/4W 680	
R4594	ERDS2TJ681T	CARBON 1/4W 680	
R4701	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5301	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5304	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5308	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5309	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5315	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5316	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5317	ERDS2TJ101T	CARBON 1/4W 100	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5325	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5407	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5501	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471T	CARBON 1/4W 470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP 1/10W 3.24K	▲
R5506	ERDS2TJ473T	CARBON 1/4W 47K	
R5507	ERDS2TJ101T	CARBON 1/4W 100	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERDS2TJ151T	CARBON 1/4W 150	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERDS2TJ332T	CARBON 1/4W 3.3K	
R5601	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5611	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5612	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5614	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5933	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6002	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6005	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6006	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6007	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6009	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

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Ref. No.	Part No.	Part Name & Description	Remarks
R6016	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6017	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6019	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6020	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6021	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6022	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6023	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6024	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6026	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6028	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6031	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6032	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6033	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6039	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6044	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6045	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6048	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6049	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6050	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6054	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6055	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6056	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6060	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6061	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6062	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6065	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6067	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6068	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6070	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6071	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6072	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6073	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6075	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6086	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6088	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6089	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6090	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6091	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6092	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6094	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( B,C,F,G )	
R6101	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6102	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6103	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6104	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6105	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6110	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6111	ERJ6GEYJ153V	MGF CHIP 1/10W 15K ( F,G )	
R6112	ERJ6GEYJ224V	MGF CHIP 1/10W 220K ( F,G )	
R6113	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6114	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6115	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6116	ERDS2TJ101T	CARBON 1/4W 100	
R6118	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6119	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6120	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6121	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6122	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R6123	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6124	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6125	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6126	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6127	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6130	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6131	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R6132	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6133	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6134	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6135	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6136	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6137	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6138	ERDS2TJ560T	CARBON 1/4W 56	
R6142	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6143	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6144	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6146	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6147	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( F,G )	
R6148	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( A,B,C,D,E )	
R6150	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6160	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6161	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6162	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6163	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6169	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6170	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6171	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6201	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6202	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6203	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R6206	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6207	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6208	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6209	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6210	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6211	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6306	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6316	ERJ6GEYJ471V	MGF CHIP 1/10W 470	

Ref. No.	Part No.	Part Name & Description	Remarks
R6401	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7005	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7006	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7007	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2UF	
C402	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1UF	
C409	ECA1VM101B	ELECTROLYTIC 35V 100UF	
C413	ECQB1H104KF	POLYESTER 50V 0.1UF	
C414	ECA1EM102E	ELECTROLYTIC 25V 1000	
C418	ECA1VM221B	ELECTROLYTIC 35V 220UF	
C458	ECQB1H103KM	POLYESTER 50V 0.01UF	
C501	ECQB1H473KM3	POLYESTER 50V 0.047UF	
C510	ECKR2H681KB5	CERAMIC 500V 680PF	
C513	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C524	ECKW3D221KBP	CERAMIC 2KV 220PF	▲
C524	ECKC3D221KBP	CERAMIC 2KV 220PF	▲
C531	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C541	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C543	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C552	ECA1EM471B	ELECTROLYTIC 25V 470UF	
C553	ECKR2H471KB5	CERAMIC 500V 470PF	
C554	ECWH20562JVB	POLYESTER 2000V 5600PF	▲
C554	ECWH15H562J4	POLYESTER 1.5KV 5600UF	▲
C556	ECWF2334JBB	POLYESTER 500V 0.33UF	▲
C556	ECWF2334JSB	POLYESTER 500V 0.33UF	▲
C556	LSCFM2334JM	POLYESTER 500V 0.33UF	▲
C558	ECA1VM101B	ELECTROLYTIC 35V 100	
C560	ECA2EM100E	ELECTROLYTIC 250V 10UF	▲
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2UF	
C563	ECEA180V33WE	ELECTROLYTIC 180V 33UF	
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C801	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C802	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C803	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C804	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C805	ECES2DU221EG	ELECTROLYTIC 200V 220UF	▲
C806	ECA2DM100E	ELECTROLYTIC 200V 10UF	
C807	VSQ1003-F	ARRESTER	▲
C808	ECQU2A823MLA	POLYESTER 250V 0.082UF	▲
C808	LSCFQ2A823MC	POLYESTER 250V 0.082UF	▲
C809	ECKATS221MB	CERAMIC 125V 220PF	▲

Ref. No.	Part No.	Part Name & Description	Remarks
C809	ECKETS221MB	CERAMIC 125V 220PF	▲
C809	VCKSEJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSELD221KW	CERAMIC 125V 220PF	▲
C809	VCKSHJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSHLD221KW	CERAMIC 125V 220PF	▲
C809	VCKSTJG221KW	CERAMIC 250V 220PF	▲
C809	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C809	VCKSUJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSULD221KW	CERAMIC 125V 220PF	▲
C810	ECKATS221MB	CERAMIC 125V 220PF	▲
C810	ECKETS221MB	CERAMIC 125V 220PF	▲
C810	VCKSEJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSELD221KW	CERAMIC 125V 220PF	▲
C810	VCKSHJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSHLD221KW	CERAMIC 125V 220PF	▲
C810	VCKSTJG221KW	CERAMIC 250V 220PF	▲
C810	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C810	VCKSUJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSULD221KW	CERAMIC 125V 220PF	▲
C811	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C811	VCKST3G332MX	CERAMIC 250V 3300PF	▲
C811	VCKSUKD332MX	CERAMIC 125V 3300PF	▲
C811	VCKSUMD332MX	CERAMIC 125V 3300PF	▲
C811	VCKSU3D332MX	CERAMIC 125V 3300PF	▲
C812	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C812	VCKST3G332MX	CERAMIC 250V 3300PF	▲
C812	VCKSUKD332MX	CERAMIC 125V 3300PF	▲
C812	VCKSUMD332MX	CERAMIC 125V 3300PF	▲
C812	VCKSU3D332MX	CERAMIC 125V 3300PF	▲
C1001	ECKATS103MF	CERAMIC 250V 0.01UF	▲
C1001	ECKETS103MF	CERAMIC 125V 0.01UF	▲
C1002	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C1002	ECKDNB332ME8	CERAMIC 125V 3300PF	▲
C1002	ECKETS332ME8	CERAMIC 125V 3300PF	▲
C1003	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C1003	ECKETS332ME8	CERAMIC 125V 3300PF	▲
C1003	VCKST3G332MX	CERAMIC 250V 3300PF	▲
C1003	VCKSU3D332MX	CERAMIC 125V 3300PF	▲
C1004	ECEA2DU121YE	ELECTROLYTIC 200V 120UF	▲
C1004	VCESAN2D121E	ELECTROLYTIC 200V 120UF	▲
C1004	VCESR2D121XE	ELECTROLYTIC 200V 120UF	▲

Ref. No.	Part No.	Part Name & Description	Remarks
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7UF	
C1006	ECKR2H221KB5	CERAMIC 500V 220PF	
C1007	ECUV1C224KBN	C CHIP 16V 0.22UF	
C1009	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1010	ECUV1H101JCN	C CHIP 50V 100PF	
C1011	ECA1HHG4R7B	ELECTROLYTIC 50V 4.7UF	
C1012	ECEA1PEE331	ELECTROLYTIC 18V 330UF	
C1013	ECA1EM331B	ELECTROLYTIC 25V 330UF	
C1014	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7UF	
C1016	ECEA1PEE331	ELECTROLYTIC 18V 330UF	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C1018	ECUV1E104KBN	C CHIP 25V 0.1UF	
C1021	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C1025	ECKETS221MB	CERAMIC 125V 220PF	▲
C1025	ECKATS221MB	CERAMIC 125V 220PF	▲
C1025	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C1025	VCKSU4D221KW	CERAMIC 125V 220PF	▲
C1025	VCKSU5D221KW	CERAMIC 125V 220PF	▲
C1029	ECUV1H101JCN	C CHIP 50V 100PF	
C1030	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1032	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1058	ECEA0JEE101	ELECTROLYTIC 6.3V 100UF	
C1059	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C1083	ECKATS221MB	CERAMIC 125V 220PF	▲
C1083	ECKETS221MB	CERAMIC 125V 220PF	▲
C1083	VCKSEJD221KW	CERAMIC 125V 220PF	▲
C1083	VCKSELD221KW	CERAMIC 125V 220PF	▲
C1083	VCKSHJD221KW	CERAMIC 125V 220PF	▲
C1083	VCKSHLD221KW	CERAMIC 125V 220PF	▲
C1083	VCKSTJG221KW	CERAMIC 250V 220PF	▲
C1083	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C1083	VCKSUJD221KW	CERAMIC 125V 220PF	▲
C1083	VCKSULD221KW	CERAMIC 125V 220PF	▲
C1084	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C1084	ECKETS332ME8	CERAMIC 125V 3300PF	▲
C1084	VCKST3G332MX	CERAMIC 250V 3300PF	▲
C1084	VCKSU3D332MX	CERAMIC 125V 3300PF	▲
C2601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2602	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2603	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2604	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2605	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2606	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2607	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2608	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C2609	ECUV1E104ZFN	C CHIP 25V 0.1UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C2610	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2611	ECUV1H103KBN	C CHIP 50V 0.01UF	
C2612	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C3003	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3004	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3006	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3008	ECUV1H181JCN	C CHIP 50V 180PF	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C3010	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3013	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3022	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3023	ECUV1H680JCN	C CHIP 50V 68PF	
C3024	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3025	ECUV1E104KBN	C CHIP 25V 0.1UF	
C3026	ECUV1H822KBN	C CHIP 50V 8200PF	
C3027	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3030	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3031	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3032	ECUV1C474ZFN	C CHIP 16V 0.47UF	
C3034	ECUV1H181JCN	C CHIP 50V 180PF	
C3035	ECUV1H330JCN	C CHIP 50V 33PF	
C3036	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3041	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3043	ECUV1H392KBN	C CHIP 50V 3900PF	
C3044	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3045	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3048	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3053	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3055	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3056	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3057	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3058	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3060	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3081	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C3082	ECUV1H332KBN	C CHIP 50V 3300PF	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C3232	ECUV1H102KBN	C CHIP 50V 1000PF	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3235	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3236	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3237	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3301	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3302	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C4001	ECUV1C224ZFN	C CHIP 16V 0.22UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4003	ECUV1H272KBN	C CHIP 50V 2700PF	
C4004	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C4006	ECUV1H102KBN	C CHIP 50V 1000PF	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22UF	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4010	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4011	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4018	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4020	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4051	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4102	ECQB1562JF3	POLYESTER 100V 5600PF	
C4103	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4104	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4504	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4506	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C4508	ECA1CM221B	ELECTROLYTIC 16V 220UF	
C4509	ECUV1E473KBN	C CHIP 25V 0.047UF	
C4521	ECA1EM102B	ELECTROLYTIC 25V 1000UF	
C4524	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5301	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C5303	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C5305	ECEA1HKAR33	ELECTROLYTIC 50V 0.33UF	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5308	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5401	VCUSTBC224KB	C CHIP 16V 0.22UF	
C5402	ECUV1H222KBN	C CHIP 50V 2200PF	
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C5501	ECUV1E183KBN	C CHIP 25V 0.018UF	
C5502	ECUV1H681KBN	C CHIP 50V 680PF	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5506	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5507	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5508	ECUV1H221JSN	C CHIP 50V 220PF	
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5511	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5516	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5601	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5602	ECUV1E104KBN	C CHIP 25V 0.1UF	
C5603	ECUV1H150JCN	C CHIP 50V 15PF	
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5605	ECUV1E153KBN	C CHIP 25V 0.015UF	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C5904	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5906	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5932	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C6001	ECEA0JKA331	ELECTROLYTIC 6.3V 330UF	
C6002	ECUV1H080CCN	C CHIP 50V 8PF	
C6003	ECUV1H150JCN	C CHIP 50V 15PF	
C6004	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6006	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6009	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6011	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6013	ECUV1H101JCN	C CHIP 50V 100PF	
C6017	ECUV1H101JCN	C CHIP 50V 100PF	
C6018	ECUV1H101JCN	C CHIP 50V 100PF	
C6020	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6021	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6023	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6025	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C6029	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6040	ECUV1H102KBN	C CHIP 50V 1000PF	
C6041	ECUV1H102KBN	C CHIP 50V 1000PF	
C6044	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C6203	ECUV1H332KBN	C CHIP 50V 3300PF	
C6204	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6205	ECUV1H330JCN	C CHIP 50V 33PF	
C6207	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6208	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6209	ECUV1H102KBN	C CHIP 50V 1000PF	
C6211	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6212	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6213	ECEA0JKS331I	ELECTROLYTIC 6.3V 330UF	
C6214	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C6215	ECUV1H272KBN	C CHIP 50V 2700PF	
C6216	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6220	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C6221	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C6302	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6401	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6402	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6403	ECUV1A105KBN	C CHIP 10V 1UF	
C6404	ECUV1H121JCN	C CHIP 50V 120PF	
C6406	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C6408	ECUV1H222KBN	C CHIP 50V 2200PF	
C6410	ECUV1H103KBN	C CHIP 50V 0.01UF	
C7002	ECUV1H102KBN	C CHIP 50V 1000PF	
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C7007	ECUV1H102KBN	C CHIP 50V 1000PF	
C7008	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

## FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014	FILTER	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L552	TSC925V	COIL	
L553	VLQSW07D220M	COIL 22UH	
L803	ELF18D650C	COIL 8.2MH	▲
L1001	ELF15N005A	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0166	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0167	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0287	LINE FILTER 0.5A 18MH	▲
L1002	VLQSAB7D220K	COIL 22UH	
L1003	VLQSAB7D100K	COIL 10UH	
L1006	VLPS0083	FILTER	
L3001	VLQSH02R390K	COIL 39UH	
L3002	ELESN101KA	COIL 100UH	
L3005	VLQSH02R330K	COIL 33UH	
L3010	ELESN470KA	COIL 47UH	
L3231	ELESN221KA	COIL 220UH	
L4001	VLQSU06R153K	COIL 15MH	
L4002	ELESN101KA	COIL 100UH	
L4004	VLQSH02R390K	COIL 39UH	
L4101	ELESN471KA	COIL 470UH	
L5901	ELESN101KA	COIL 100UH	
L6201	ELEXT101KE04	COIL 100UH	
L6401	ELEXT101KE04	COIL 100UH	
L6402	VLPS0111	CHIP BEAD INDUCTOR	
L6403	VLPS0111	CHIP BEAD INDUCTOR	
L6404	VLPS0111	CHIP BEAD INDUCTOR	
L6405	VLPS0111	CHIP BEAD INDUCTOR	
L7002	ELESN100KA	COIL 10UH	

## CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X5501	CSB503F38	CRYSTAL OSCILLATOR	
X5601	VSXS0190-TB	CRYSTAL OSCILLATOR	
X6001	VSXS0784	CRYSTAL OSCILLATOR	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P801	VEKS5809	CONNECTOR CABLE W/OUT PLUG, 200V	
P803	VJPS0303	CONNECTOR 2P	
P3001	LSJP0085	CONNECTOR 10P ( A,B,C,D,E )	
P3001	VJPS0882	CONNECTOR 12P ( F,G )	
P4001	VJSS0888	FE CONNECTOR 2P	
P4591	VJPS0268	CONNECTOR 2P	
P6001	VJPS0275	CONNECTOR 5P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

## SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6303	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6309	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	

## FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	XBA1C40NU100	FUSE 125V 4A	▲
F801	VSFS0003A40	FUSE 4A	▲
F1001	VSFS0003A16	FUSE 125V 1.6A	▲
F1001	VSFS0032B16	FUSE 125V 1.6A	▲
F1001	XBA1C16NU100	FUSE 125V 1.6A	▲
PR1001	UNH000600A	IC PROTECTOR 1.5A	▲
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	▲
PR1001	LSSF009A25E	IC PROTECTOR 1.5A	▲
PR1002	UNH000600A	IC PROTECTOR 1.5A	▲
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	▲
PR1002	LSSF009A25E	IC PROTECTOR 1.5A	▲

## RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL801	TSEH0019	RELAY	▲
RL801	LSSY0004	RELAY	▲
RL801	TSEH0005	RELAY,120V	▲
RL801	TSEH1860-1	RELAY	▲
RL801	TSEH8007	RELAY,120V	▲

## TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH09K6AZ	TRANSFORMER	
T502	ETE16Z37AY	TRANSFORMER	⚠
T551	KFT2AB338F	TRANSFORMER	⚠
T1001	ETS28AD2J3NC	SW TRANSFORMER	⚠
T1001	LSTP0105	SW TRANSFORMER	⚠
T1001	VTPS0041-1	SW TRANSFORMER	⚠
T1001	VTPS0042-1	SW TRANSFORMER	⚠
T4101	VLTS0367	TRANSFORMER	

### JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	LJP28016A	FRONT AUDIO/VIDEO JACK SOCKET	
JK4701	LJP68005A	EARPHONE JACK SOCKET	

### MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
244	TUX77809	CLAMPER	
458	XTV3+8J	TAPPING SCREW,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
484	XTW3+10J	TAPPING SCREW,STEEL	
488	XYN3+F6S	SCREW W/WASHER,STEEL	
711	PNA4611M00HC	INFRARED RECEIVER UNIT	
743	ENG36706G	TUNER,UHF/VHF NR ( A,D,E )	
743	ENG36709G	TUNER,UHF/VHF NR ( B,C,F,G )	
751	LML69001A	ANODE LEAD CLAMPER	
758	TUC77616	HEAT SINK	
766	TUC76677-1	HEAT SINK	
771	EYF52BC	FUSE HOLDER	

### 12.3.2. TV/VCR MAIN C.B.A.

( Model: H, I, J, K, L )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR	
IC501	TLP621GR	IC, LINEAR	⚠
IC501	ON3131-R	IC, LINEAR	⚠
IC501	ON3131-R.KT	IC, LINEAR	⚠
IC801	STR30130	IC, LINEAR	⚠
IC1001	ON3131-R.KT	IC, LINEAR	⚠
IC2601	AN3808K	IC, LINEAR	
IC3001	AN3479FBP-A	IC, LINEAR	
IC3201	MN3885S	IC, CCD	E.S.D.
IC4501	LA4285	IC, LINEAR	
IC4511	LA4285	IC, LINEAR ( L )	
IC5301	AN5368FB	IC, LINEAR	
IC6001	MN101D07HCA	IC, 8BIT MICROCONTROLLER	E.S.D.
IC6002	RPI-303	PHOTO INTERRUPTER	
IC6003	RPI-303	PHOTO INTERRUPTER	
IC6004	BR24C01AFWE2	IC, 1K EEP ROM	E.S.D.
IC6004	AT24C01A10SI	IC, 1K EEP ROM	E.S.D.
IC6004	KS24C011IS	IC, 1K EEP ROM	E.S.D.
IC6004	M24C01-MN6	IC, 1K EEP ROM	E.S.D.
IC6005	PST3147NR	IC, CMOS STANDARD LOGIC	E.S.D.
IC6005	RN5VS47CA-TR	IC, CMOS STANDARD LOGIC	E.S.D.
IC6005	XC61CC4702MR	IC, CMOS STANDARD LOGIC	E.S.D.

## TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA733(TQ)	TRANSISTOR SI PNP	
Q431	2SA1175	TRANSISTOR SI PNP	
Q431	2SA1175(TH)	TRANSISTOR SI PNP	
Q501	2SC2482KT6	TRANSISTOR SI NPN	
Q502	2SC945A(TQ)	TRANSISTOR SI NPN	
Q502	2SC2785(TH)	TRANSISTOR SI NPN	
Q502	2SC2785(TJ)	TRANSISTOR SI NPN	
Q541	2SB709A	TRANSISTOR SI PNP CHIP	
Q541	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q542	2SD601A	TRANSISTOR SI NPN CHIP	
Q542	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q551	2SD2578(RG)	TRANSISTOR SI NPN	⚠
Q571	2SD601A	TRANSISTOR SI NPN CHIP	
Q571	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q581	2SA1321TPE6	TRANSISTOR SI NPN	
Q581	2SA1767(Q)	TRANSISTOR SI NPN	
Q581	2SB1221(Q)	TRANSISTOR SI NPN	
Q801	2SC945A(TKA)	TRANSISTOR SI NPN	
Q801	2SC1684(Q,R,S)	TRANSISTOR SI NPN	
Q801	2SC2785(TE)	TRANSISTOR SI NPN	
Q801	2SC2785(TF)	TRANSISTOR SI NPN	
Q801	2SC2785(TH)	TRANSISTOR SI NPN	
Q801	2SC2785(TJ)	TRANSISTOR SI NPN	
Q801	2SC2785(TK)	TRANSISTOR SI NPN	
Q801	2SC3311A(Q,R,S)	TRANSISTOR SI NPN	
Q801	2SC945A(tpa)	TRANSISTOR SI NPN	

Ref. No.	Part No.	Part Name & Description	Remarks
Q801	2SC945A(TQA)	TRANSISTOR SI NPN	
Q1001	2SC4533LP.KT	TRANSISTOR SI NPN	⚠
Q1001	2SC5130LF608	TRANSISTOR SI NPN	⚠
Q1002	2SD2259	TRANSISTOR SI NPN	
Q1002	2SD1458	TRANSISTOR SI NPN	
Q1003	2SD1819ARS	TRANSISTOR SI NPN CHIP	
Q1003	2SC4081T106R	TRANSISTOR SI NPN CHIP	
Q1004	2SB709ARS	TRANSISTOR SI PNP CHIP	
Q1004	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q1005	2SB1218ARS	TRANSISTOR SI PNP CHIP	
Q1005	2SA1576A106R	TRANSISTOR SI PNP CHIP	
Q1051	2SD2159(T)	TRANSISTOR SI NPN	
Q1051	2SD1581(T)	TRANSISTOR SI NPN	
Q1052	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q1052	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q1053	2SD235800A	TRANSISTOR SI NPN CHIP	
Q1053	2SD2097TV2R	TRANSISTOR SI NPN CHIP	
Q1070	2SA733(TK)	TRANSISTOR SI PNP	
Q1070	2SA1175(TE)	TRANSISTOR SI PNP	
Q1070	2SA1175(TF)	TRANSISTOR SI PNP	
Q1070	2SA1175(TH)	TRANSISTOR SI PNP	
Q1070	2SA1175(TJ)	TRANSISTOR SI PNP	
Q1070	2SA1175(TK)	TRANSISTOR SI PNP	
Q1070	2SA1309A(Q,R,S)	TRANSISTOR SI PNP	
Q1070	2SA564A(Q,R,S)	TRANSISTOR SI PNP	
Q1070	2SA733(TP)	TRANSISTOR SI PNP	
Q1070	2SA733(TQ)	TRANSISTOR SI PNP	
Q1071	2SD601A	TRANSISTOR SI NPN CHIP	
Q1071	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q3001	2SB709A	TRANSISTOR SI PNP CHIP	
Q3001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q3002	2SD601A	TRANSISTOR SI NPN CHIP	
Q3002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q3301	2SD601A	TRANSISTOR SI NPN CHIP	
Q3301	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q4001	2SB709A	TRANSISTOR SI PNP CHIP	
Q4001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q4002	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4003	2SD601(RS)	TRANSISTOR SI NPN CHIP	
Q4101	2SD601A	TRANSISTOR SI NPN CHIP	
Q4101	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q4171	2SD601A	TRANSISTOR SI NPN CHIP	
Q4171	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5301	2SD601A	TRANSISTOR SI NPN CHIP	
Q5301	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q5901	2SD2259	TRANSISTOR SI NPN	
Q5901	2SD1858-RTV2	TRANSISTOR SI NPN	
Q6001	2SB709A	TRANSISTOR SI PNP CHIP	
Q6001	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6002	2SD601A	TRANSISTOR SI NPN CHIP	
Q6002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6003	2SD601A	TRANSISTOR SI NPN CHIP	
Q6003	2SC2412K146R	TRANSISTOR SI NPN CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q6004	2SB709A	TRANSISTOR SI PNP CHIP	
Q6004	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6005	2SB709A	TRANSISTOR SI PNP CHIP	
Q6005	2SA1037K146R	TRANSISTOR SI PNP CHIP	
Q6006	2SD601A	TRANSISTOR SI NPN CHIP	
Q6006	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01V	DIODE SI	
D401	ERB12-01	DIODE SI	
D401	ERB12-01RKV1	DIODE SI	
D502	MA165	DIODE SI	
D502	1SS119	DIODE SI	
D502	1SS133T	DIODE SI	
D503	ERB43-04V	DIODE SI	
D503	ES1V	DIODE SI	
D504	MA4047-M	DIODE ZENER 4.7V	
D504	MA4047-H	DIODE ZENER 4.7V	
D504	RD4.7ESAB	DIODE ZENER 4.7V	
D504	RD4.7ESAB2	DIODE ZENER 4.7V	
D504	04AZ4.7ZTPA7	DIODE ZENER 4.7V	
D505	MA165	DIODE SI	
D505	1SS119	DIODE SI	
D505	1SS133T	DIODE SI	
D506	MA165	DIODE SI	
D506	1SS119	DIODE SI	
D506	1SS133T	DIODE SI	
D541	MA165	DIODE SI	
D541	1SS119	DIODE SI	
D541	1SS133T	DIODE SI	
D542	MA4180-M	DIODE ZENER 18V	
D543	MA165	DIODE SI	
D543	1SS119	DIODE SI	
D543	1SS133T	DIODE SI	
D544	ERB43-04V	DIODE SI	
D544	ES1V	DIODE SI	
D553	ERB43-04V	DIODE SI	
D553	ES1V	DIODE SI	
D554	4148-TA	DIODE SI	
D554	MA167	DIODE SI	
D556	MA185	DIODE SI	
D558	ERB43-04V	DIODE SI	
D558	ES1V	DIODE SI	
D560	ERB44-04V	DIODE SI	
D591	TRPF5B0M050K	THERMISTOR	▲
D591	VRPSKF5JM050	THERMISTOR	▲
D801	ERC13-08V	DIODE SI	▲
D801	EM02BMV	DIODE SI	▲

Ref. No.	Part No.	Part Name & Description	Remarks
D802	ERC13-08V	DIODE SI	▲
D802	EM02BMV	DIODE SI	▲
D803	ERC13-08V	DIODE SI	▲
D803	EM02BMV	DIODE SI	▲
D804	ERC13-08V	DIODE SI	▲
D804	EM02BMV	DIODE SI	▲
D805	4148-TA	DIODE SI	
D881	ERZV10V361CS	SURGE ABSORBER	▲
D882	ERZV10V361CS	SURGE ABSORBER	▲
D1001	DB105G	DIODE SI	▲
D1001	S1NB60-4101	DIODE SI	▲
D1001	S1WBA60	DIODE SI	▲
D1002	ERA18-04	DIODE SI	
D1002	EG01	DIODE SI	
D1003	ERA18-04	DIODE SI	
D1003	EG01	DIODE SI	
D1005	ERA18-04	DIODE SI	
D1005	EG01	DIODE SI	
D1006	ERC30-01L3	DIODE SI	
D1007	MA188	DIODE SI	
D1007	1SS244T-77	DIODE SI	
D1008	RK14	DIODE SI	
D1008	ERB81-004	DIODE SI	
D1011	MA4051N-TAKT	DIODE ZENER 5.1V	
D1012	MA858	DIODE SI	
D1012	1SS135T-77	DIODE SI	
D1013	MA165	DIODE SI	
D1013	1SS119	DIODE SI	
D1013	1SS133T	DIODE SI	
D1015	MA2180LA	DIODE ZENER 18V	▲
D1015	1N4746A-T	DIODE ZENER 18V	▲
D1015	1N4746ARL	DIODE ZENER 18V	▲
D1016	MA165	DIODE SI	
D1016	1SS119	DIODE SI	
D1016	1SS133T	DIODE SI	
D1051	MA4110N-H	DIODE ZENER 11V	
D1070	MA4056-M	DIODE ZENER 5.6V	
D4171	MA165	DIODE SI	
D4171	1SS119	DIODE SI	
D4171	1SS133T	DIODE SI	
D4591	RD9.1EW	DIODE ZENER 9.1V	
D5501	MA4062-L	DIODE ZENER 6.2V	▲
D5602	MA165	DIODE SI	
D5602	1SS119	DIODE SI	
D5602	1SS133T	DIODE SI	
D5603	MA165	DIODE SI	
D5603	1SS119	DIODE SI	
D5603	1SS133T	DIODE SI	
D6001	VEKS5708	SENSOR LED UNIT	

Ref. No.	Part No.	Part Name & Description	Remarks
D6003	MA165	DIODE SI	
D6003	1SS119	DIODE SI	
D6003	1SS133T	DIODE SI	
D6005	MA165	DIODE SI	
D6005	1SS119	DIODE SI	
D6005	1SS133T	DIODE SI	
D6009	MA165	DIODE SI	
D6009	1SS119	DIODE SI	
D6009	1SS133T	DIODE SI	
D6301	SLP913C81HAB	LIGHT EMITTING DIODE RED	
D6302	SLP413C81HAB	LIGHT EMITTING DIODE ORANGE	
D6303	SLP313C81HAB	LIGHT EMITTING DIODE GREEN	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ271T	CARBON 1/4W 270	
R402	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R409	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R410	ERDS2TJ392T	CARBON 1/4W 3.9K	
R411	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R413	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R414	ERDS1FJ1R2P	CARBON 1/2W 1.2	▲
R422	ERD25FJ101P	CARBON 1/4W 100	▲
R427	ERQ14AJ5R6P	FUSE 1/4W 5.6	▲
R431	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R432	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R433	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R434	ERDS2TJ103	CARBON 1/4W 10K	
R435	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R474	ERDS2TJ152T	CARBON 1/4W 1.5K	
R501	ERDS2TJ681T	CARBON 1/4W 680	
R502	ERDS2TJ332T	CARBON 1/4W 3.3K	
R503	ER0S2THF1152	PRECISION METAL FILM 1/4W 11.5K	▲
R503	ER0S2TKF1152	PRECISION METAL FILM 1/4W 11.5K	▲
R503	VRESR4TF1152	PRECISION METAL FILM 1/4W 11.5K	▲
R505	ERDS2TJ561T	CARBON 1/4W 560	
R509	ERDS2TJ101T	CARBON 1/4W 100	
R510	ERDS2TJ472T	CARBON 1/4W 4.7K	
R511	ERG2ANJ222H	METAL OXIDE 2W 2.2K	
R514	ERDS2TJ271T	CARBON 1/4W 270	
R515	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R516	LAR05272J09	W FLMPRF 5W 2.7K	
R519	ERDS2TJ123T	CARBON 1/4W 12K	
R520	ERDS2TJ562T	CARBON 1/4W 5.6K	
R524	ERDS2TJ223	CARBON 1/4W 22K	
R525	ERDS2TJ222T	CARBON 1/4W 2.2K	
R529	ERDS2TJ103	CARBON 1/4W 10K	
R531	ERDS2TJ223	CARBON 1/4W 22K	

Ref. No.	Part No.	Part Name & Description	Remarks
R541	ERDS2TJ473T	CARBON 1/4W 47K	
R542	ERDS2TJ103	CARBON 1/4W 10K	
R543	ERDS2TJ472T	CARBON 1/4W 4.7K	
R545	ERDS2TJ331T	CARBON 1/4W 330	
R546	ERDS2TJ103	CARBON 1/4W 10K	
R547	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R548	ERDS2TJ104T	CARBON 1/4W 100K	
R552	ERDS2TJ273T	CARBON 1/4W 27K	
R553	ERDS2TJ102	CARBON 1/4W 1K	
R554	ERDS2TJ123T	CARBON 1/4W 12K	
R555	ERDS2TJ823T	CARBON 1/4W 82K	
R556	ERDS2TJ823T	CARBON 1/4W 82K	
R557	ERG2SJ331H	METAL OXIDE 2W 330	
R558	ERG2ANJ561H	METAL OXIDE 2W 560	
R559	ERDS2TJ123T	CARBON 1/4W 12K	
R561	ERQ2CJP1R8S	FUSE 2W 1.8	▲
R562	ERF2AK3R9P	W FLMPRF 2W 3.9	
R571	ERDS2TJ101T	CARBON 1/4W 100	
R572	ERDS2TJ331T	CARBON 1/4W 330	
R573	ERDS2TJ221	CARBON 1/4W 220	
R574	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R581	ERDS1FJ1R5P	CARBON 1/2W 1.5	▲
R582	ERDS1FJ1R2P	CARBON 1/2W 1.2	▲
R584	ERDS2TJ562T	CARBON 1/4W 5.6K	
R585	ERDS2TJ473T	CARBON 1/4W 47K	
R586	ERDS2TJ393T	CARBON 1/4W 39K	
R801	ERF3AKR82	W FLMPRF 3W 0.82	▲
R802	ERDS1FJ103P	CARBON 1/2W 10K	▲
R802	ERDS1FPJ103	CARBON 1/2W 10K	▲
R804	ERF15ZJ181	W FLMPRF 15W 180	
R805	ERDS2TJ104T	CARBON 1/4W 100K	
R806	ERQ14AJ470P	FUSE 1/4W 47	▲
R810	ERDS2TJ103	CARBON 1/4W 10K	
R813	ERDS2TJ104T	CARBON 1/4W 100K	
R818	VRESC2TK825T	CARBON 1/2W 8.2M	▲
R865	ERDS2TJ222T	CARBON 1/4W 2.2K	
R1003	VRESE2TJ334T	CARBON 1/2W 330K	
R1004	ERG2SJ333H	METAL OXIDE 2W 33K	
R1005	ERG1SJ560P	METAL OXIDE 1W 56	
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101T	CARBON 1/4W 100	
R1008	ERDS2TJ392T	CARBON 1/4W 3.9K	
R1010	ERD25FJ100P	CARBON 1/4W 10	▲
R1010	ERD25FPJ100P	CARBON 1/4W 10	▲
R1010	VRESF4FJ100P	CARBON 1/4W 10	▲
R1011	ERD25FJ100P	CARBON 1/4W 10	▲
R1011	ERD25FPJ100P	CARBON 1/4W 10	▲
R1011	VRESF4FJ100P	CARBON 1/4W 10	▲
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	

Ref. No.	Part No.	Part Name & Description	Remarks
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1024	ERDS2T0T	CARBON 1/4W 0	
R1025	VRESE2TJ150T	CARBON 1/2W 15	
R1051	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1052	ERDS2TJ153T	CARBON 1/4W 15K	
R1053	ERDS2TJ153T	CARBON 1/4W 15K	
R1057	ERDS2TJ331T	CARBON 1/4W 330	
R1058	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1070	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1071	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R1072	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1073	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1074	ERG2SJ102E	METAL OXIDE 2W 1K	
R1075	ERG2SJ102E	METAL OXIDE 2W 1K	
R1076	VLQSH02R101K	COIL 100UH	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0T	CARBON 1/4W 1.0	
R2605	ERDS2TJ1R2T	CARBON 1/4W 1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3001	ERDS2TJ101T	CARBON 1/4W 100	
R3006	ERDS2TJ101T	CARBON 1/4W 100	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3024	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYG102V	MGF CHIP 1/10W 1K	
R3037	ERJ6GEYG102V	MGF CHIP 1/10W 1K	
R3038	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3043	ERJ6GEYG392V	MGF CHIP 1/10W 3.9K ( H,I,J,K )	
R3044	ERJ6GEYG682V	MGF CHIP 1/10W 6.8K ( H,I,J,K )	
R3045	ERJ6GEYG222V	MGF CHIP 1/10W 2.2K ( H,I,J,K )	
R3046	ERJ6GEYG682V	MGF CHIP 1/10W 6.8K ( H,I,J,K )	
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3083	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3084	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3086	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3087	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K ( H,I,J,K )	
R3087	ERJ6GEYJ684V	MGF CHIP 1/10W 680K ( L )	
R3091	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3302	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3303	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4018	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K ( H,K,L )	
R4018	ERJ6GEYJ123V	MGF CHIP 1/10W 12K ( I,J )	
R4021	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4171	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4173	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4502	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4504	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4509	ERDS2TJ100T	CARBON 1/4W 10	
R4512	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( L )	
R4514	ERJ6GEYJ823V	MGF CHIP 1/10W 82K ( L )	
R4519	ERDS2TJ100T	CARBON 1/4W 10 ( L )	
R4521	ERQ1ABJP4R7S	FUSE 1W 4.7 ( H,I,J,K )	▲
R4521	ERQ1ABJP2R2S	FUSE 1W 2.2 ( L )	▲
R4523	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4524	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4591	ERDS2TJ681T	CARBON 1/4W 680	
R4592	ERDS2TJ681T	CARBON 1/4W 680	
R4593	ERDS2TJ681T	CARBON 1/4W 680	
R4594	ERDS2TJ681T	CARBON 1/4W 680	
R4701	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5301	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5304	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5308	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5309	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERDS2TJ272T	CARBON 1/4W 2.7K	
R5315	ERDS2TJ272T	CARBON 1/4W 2.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R5316	ERDS2TJ272T	CARBON 1/4W 2.7K	
R5317	ERDS2TJ101T	CARBON 1/4W 100	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5325	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5501	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471T	CARBON 1/4W 470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP 1/10W 3.24K	▲
R5506	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERDS2TJ151T	CARBON 1/4W 150	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5601	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5611	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5612	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5614	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5933	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6002	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6005	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6006	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6007	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6009	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6014	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( L )	
R6015	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( L )	
R6016	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6017	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6019	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6020	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6021	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6022	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6023	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6024	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6026	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6028	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6031	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6032	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

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Ref. No.	Part No.	Part Name & Description	Remarks
R6033	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6036	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( L )	
R6039	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6044	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6045	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6047	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( I,J,L )	
R6048	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6049	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6050	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6054	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6055	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6056	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6057	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6060	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6061	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6062	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6063	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6064	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( I,J,L )	
R6065	ERJ6GEYJ102V	MGF CHIP 1/10W 1K ( I,J,L )	
R6067	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6068	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6070	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6071	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6072	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6073	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6075	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6086	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6088	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6089	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6090	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6091	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6092	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6093	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( L )	
R6094	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( I,J,L )	
R6095	ERJ6GEYJ913V	MGF CHIP 1/10W 91K ( L )	
R6101	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6102	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6103	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6104	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6105	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6110	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6111	ERJ6GEYJ153V	MGF CHIP 1/10W 15K ( L )	
R6112	ERJ6GEYJ224V	MGF CHIP 1/10W 220K ( L )	
R6113	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6114	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6115	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6116	ERDS2TJ101T	CARBON 1/4W 100	
R6118	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6119	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6120	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6121	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6122	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R6123	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6124	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6125	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6126	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6127	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6130	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6131	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R6132	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6133	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6134	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6135	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6136	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6137	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6138	ERDS2TJ560T	CARBON 1/4W 56	
R6142	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6143	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6144	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6146	ERJ6GEYJ912V	MGF CHIP 1/10W 9.1K ( H,I,J,K )	
R6146	ERJ6GEYJ913V	MGF CHIP 1/10W 91K ( L )	
R6147	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( L )	
R6148	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( H,I,J,K )	
R6150	ERJ6GEYJ912V	MGF CHIP 1/10W 9.1K ( H,K )	
R6150	ERJ6GEYJ273V	MGF CHIP 1/10W 27K ( I,J,L )	
R6160	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6161	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6162	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6163	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6169	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6170	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6171	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6201	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6202	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6203	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R6206	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6207	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6208	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6209	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6210	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6211	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6306	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6316	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R6401	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7005	ERJ6GEY0R00V	MGF CHIP 1/10W 0	

Ref. No.	Part No.	Part Name & Description	Remarks
R7006	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7007	ERDS2TJ102	CARBON 1/4W 1K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2UF	
C402	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1UF	
C409	ECA1VM101B	ELECTROLYTIC 35V 100UF	
C413	ECQB1H104KF	POLYESTER 50V 0.1UF	
C414	ECA1EM102E	ELECTROLYTIC 25V 1000UF	
C418	ECA1VM221B	ELECTROLYTIC 35V 220UF	
C458	ECQB1H103KM	POLYESTER 50V 0.01UF	
C501	ECQB1H473KM3	POLYESTER 50V 0.047UF	
C510	ECKR2H102KB5	CERAMIC 500V 1000PF	
C513	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C524	ECKC3D821KBP	CERAMIC 2KV 820PF	⚠
C524	ECKW3D821KBP	CERAMIC 2KV 820PF	⚠
C531	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C541	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C543	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C552	ECA1EM471B	ELECTROLYTIC 25V 470UF	
C553	ECKR2H471KB5	CERAMIC 500V 470PF	
C554	ECWH15H682J4	POLYESTER 1.5KV 6800PF	⚠
C554	ECWH20682JBV	POLYESTER 2000V 6800PF	⚠
C556	ECWF2434JBB	POLYESTER 500V 0.43UF	⚠
C556	ECWF2434JSB	POLYESTER 500V 0.43UF	⚠
C556	LSCFM2434JM	POLYESTER 500V 0.33UF	⚠
C558	ECA1VM101B	ELECTROLYTIC 35V 100UF	
C560	ECA2EM100B	ELECTROLYTIC 250V 10UF	⚠
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2UF	
C563	ECEA180V33WE	ELECTROLYTIC 180V 33UF	
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3UF	
C572	ECA1CM221B	ELECTROLYTIC 16V 220UF	
C573	ECKR2H122KB5	CERAMIC 50V 1200PF	
C801	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C802	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C803	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C804	VCKSRNG472ZX	CERAMIC 250V 4700PF	
C805	EC0S2PP471BB	ELECTROLYTIC 180V 470UF	⚠
C805	ECES2PU471HG	ELECTROLYTIC 180V 470UF	⚠
C806	ECEA2EU220E	ELECTROLYTIC 250V 22UF	
C806	ECA2EM220E	ELECTROLYTIC 250V 22UF	
C807	VSQ1003-F	ARRESTER	⚠
C808	ECQU2A823MLA	POLYESTER 250V 0.082UF	⚠
C808	LSCFQ2A823MC	POLYESTER 250V 0.082UF	⚠
C809	ECKATS221MB	CERAMIC 125V 220PF	⚠
C809	ECKETS221MB	CERAMIC 125V 220PF	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C809	VCKSEJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSELD221KW	CERAMIC 125V 220PF	▲
C809	VCKSHJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSHLD221KW	CERAMIC 125V 220PF	▲
C809	VCKSTJG221KW	CERAMIC 250V 220PF	▲
C809	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C809	VCKSUJD221KW	CERAMIC 125V 220PF	▲
C809	VCKSULD221KW	CERAMIC 125V 220PF	▲
C810	ECKATS221MB	CERAMIC 125V 220PF	▲
C810	ECKETS221MB	CERAMIC 125V 220PF	▲
C810	VCKSEJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSELD221KW	CERAMIC 125V 220PF	▲
C810	VCKSHJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSHLD221KW	CERAMIC 125V 220PF	▲
C810	VCKSTJG221KW	CERAMIC 250V 220PF	▲
C810	VCKSTLG221KW	CERAMIC 250V 220PF	▲
C810	VCKSUJD221KW	CERAMIC 125V 220PF	▲
C810	VCKSULD221KW	CERAMIC 125V 220PF	▲
C811	ECKATS472MF	CERAMIC 250V 4700PF	▲
C812	ECKATS472MF	CERAMIC 250V 4700PF	▲
C817	ECKATS152ME	CERAMIC 250V 1500PF	▲
C1001	ECKATS103MF	CERAMIC 250V 0.01UF	▲
C1001	ECKETS103MF	CERAMIC 125V 0.01UF	▲
C1001	VCKST3G103MY	CERAMIC 250V 0.01UF	▲
C1001	VCKSU3D103MY	CERAMIC 125V 0.01UF	▲
C1002	ECKATS332ME8	CERAMIC 250V 3300PF	▲
C1002	ECKDNB332ME8	CERAMIC 125V 3300PF	▲
C1002	ECKETS332ME8	CERAMIC 125V 3300PF	▲
C1002	VCKST3G332MX	CERAMIC 250V 3300PF	▲
C1002	VCKSU3D332MX	CERAMIC 125V 3300PF	▲
C1003	ECKATS222ME	CERAMIC 250V 2200PF	▲
C1003	ECKETS222ME	CERAMIC 250V 2200PF	▲
C1003	VCKST5D222MX	CERAMIC 125V 2200PF	▲
C1003	VCKST4D222MX	CERAMIC 125V 2200PF	▲
C1003	VCKSU4D222MX	CERAMIC 125V 2200PF	▲
C1004	ECEA2DU121YE	ELECTROLYTIC 200V 120UF	▲
C1004	VCESAN2D121E	ELECTROLYTIC 200V 120UF	▲
C1004	VCESR2D121XE	ELECTROLYTIC 200V 120UF	▲
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7UF	
C1006	ECKR2H221KB5	CERAMIC 500V 220PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C1007	ECUV1C224KBN	C CHIP 16V 0.22UF	
C1009	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1010	ECUV1H101JCN	C CHIP 50V 100PF	
C1011	ECA1HHG4R7B	ELECTROLYTIC 50V 4.7UF	
C1012	ECEA1PEE331	ELECTROLYTIC 18V 330UF	
C1013	ECA1EM331B	ELECTROLYTIC 25V 330UF	
C1014	ECA1HHG4R7I	ELECTROLYTIC 50V 4.7UF	
C1016	ECEA1PEE331	ELECTROLYTIC 18V 330UF	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C1018	ECUV1E104KBN	C CHIP 25V 0.1UF	
C1021	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C1025	ECKATS221MB	CERAMIC 125V 220PF	⚠
C1025	ECKETS221MB	CERAMIC 125V 220PF	⚠
C1025	VCKSEJD221KW	CERAMIC 125V 220PF	⚠
C1025	VCKSELD221KW	CERAMIC 125V 220PF	⚠
C1025	VCKSHJD221KW	CERAMIC 125V 220PF	⚠
C1025	VCKSHLD221KW	CERAMIC 125V 220PF	⚠
C1025	VCKSTJG221KW	CERAMIC 250V 220PF	⚠
C1025	VCKSTLG221KW	CERAMIC 250V 220PF	⚠
C1025	VCKSUJD221KW	CERAMIC 125V 220PF	⚠
C1025	VCKSULD221KW	CERAMIC 125V 220PF	⚠
C1029	ECUV1H101JCN	C CHIP 50V 100PF	
C1030	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1032	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1058	ECEA0JEE101	ELECTROLYTIC 6.3V 100UF	
C1059	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C1070	ECA1CM101B	ELECTROLYTIC 16V 100UF	
C1083	ECKATS221MB	CERAMIC 125V 220PF	⚠
C1083	ECKETS221MB	CERAMIC 125V 220PF	⚠
C1083	VCKSEJD221KW	CERAMIC 125V 220PF	⚠
C1083	VCKSELD221KW	CERAMIC 125V 220PF	⚠
C1083	VCKSHJD221KW	CERAMIC 125V 220PF	⚠
C1083	VCKSHLD221KW	CERAMIC 125V 220PF	⚠
C1083	VCKSTJG221KW	CERAMIC 250V 220PF	⚠
C1083	VCKSTLG221KW	CERAMIC 250V 220PF	⚠
C1083	VCKSUJD221KW	CERAMIC 125V 220PF	⚠
C1083	VCKSULD221KW	CERAMIC 125V 220PF	⚠
C1084	ECKATS222ME	CERAMIC 250V 2200PF	⚠
C1084	ECKETS222ME	CERAMIC 250V 2200PF	⚠
C1084	VCKST5D222MX	CERAMIC 125V 2200PF	⚠
C1084	VCKSU5D222MX	CERAMIC 125V 2200PF	⚠
C1084	VCKST4D222MX	CERAMIC 125V 2200PF	⚠
C1084	VCKSU4D222MX	CERAMIC 125V 2200PF	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C1085	ECKATS152ME	CERAMIC 250V 1500PF	⚠
C2601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2602	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2603	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C2604	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2605	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2606	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2607	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2608	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C2609	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C2610	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2611	ECUV1H103KBN	C CHIP 50V 0.01UF	
C2612	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C2616	ECA1EM331B	ELECTROLYTIC 25V 330UF	
C3003	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3004	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3006	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3008	ECUV1H181JCN	C CHIP 50V 180PF	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C3010	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3013	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3022	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C3023	ECUV1H680JCN	C CHIP 50V 68PF	
C3024	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3025	ECUV1E104KBN	C CHIP 25V 0.1UF	
C3026	ECUV1H822KBN	C CHIP 50V 8200PF	
C3027	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3030	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3031	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3032	ECUV1C474ZFN	C CHIP 16V 0.47UF	
C3034	ECUV1H181JCN	C CHIP 50V 180PF	
C3035	ECUV1H330JCN	C CHIP 50V 33PF	
C3036	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3041	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3043	ECUV1H392KBN	C CHIP 50V 3900PF	
C3044	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3045	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3048	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3053	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3055	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3056	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3057	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3058	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3060	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

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Ref. No.	Part No.	Part Name & Description	Remarks
C3081	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C3082	ECUV1H332KBN	C CHIP 50V 3300PF	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C3232	ECUV1H102KBN	C CHIP 50V 1000PF	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3235	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3236	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3237	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3301	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3302	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C4001	ECUV1C224ZFN	C CHIP 16V 0.22UF	
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4003	ECUV1H272KBN	C CHIP 50V 2700PF	
C4004	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C4006	ECUV1H102KBN	C CHIP 50V 1000PF	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22UF	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4010	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4011	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4018	ECUV1H103KBN	C CHIP 50V 0.01UF ( H,I,J,K )	
C4020	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4051	ECUV1E333KBN	C CHIP 25V 0.033UF	
C4102	ECQB1562JF3	POLYESTER 100V 5600PF	
C4103	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4104	ECUV1H103KBN	C CHIP 50V 0.01UF	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4504	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4506	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C4508	ECA1CM221B	ELECTROLYTIC 16V 220UF	
C4509	ECUV1E473KBN	C CHIP 25V 0.047UF	
C4512	ECEA1CKA100	ELECTROLYTIC 16V 10UF ( L )	
C4514	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF ( L )	
C4516	ECEA1CKA470	ELECTROLYTIC 16V 47UF ( L )	
C4518	ECA1CM221B	ELECTROLYTIC 16V 220UF ( L )	
C4519	ECUV1E473KBN	C CHIP 25V 0.047UF ( L )	
C4521	ECA1EM102B	ELECTROLYTIC 25V 1000UF	
C4524	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C4525	ECUV1H103ZFN	C CHIP 50V 0.01UF ( L )	
C5301	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C5303	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C5305	ECEA1HKAR33	ELECTROLYTIC 50V 0.33UF	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5308	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5401	VCUSTBC224KB	C CHIP 16V 0.22UF	
C5402	ECUV1H222KBN	C CHIP 50V 2200PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C5501	ECUV1E183KBN	C CHIP 25V 0.018UF	
C5502	ECUV1H681KBN	C CHIP 50V 680PF	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5506	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5507	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5508	ECUV1H221JSN	C CHIP 50V 220PF	
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5511	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5516	ECUV1E333KBN	C CHIP 25V 0.033UF	
C5601	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5602	ECUV1E104KBN	C CHIP 25V 0.1UF	
C5603	ECUV1H150JCN	C CHIP 50V 15PF	
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5605	ECUV1E153KBN	C CHIP 25V 0.015UF	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5904	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5906	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C5932	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C6001	ECEA0JKA331	ELECTROLYTIC 6.3V 330UF	
C6002	ECUV1H080CCN	C CHIP 50V 8PF	
C6003	ECUV1H150JCN	C CHIP 50V 15PF ( H,I,J,K )	
C6003	ECUX1H150JCN	C CHIP 50V 15PF ( L )	
C6004	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6006	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6009	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6011	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6013	ECUV1H101JCN	C CHIP 50V 100PF	
C6017	ECUV1H101JCN	C CHIP 50V 100PF	
C6018	ECUV1H101JCN	C CHIP 50V 100PF	
C6020	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6021	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6023	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6025	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C6029	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6040	ECUV1H102KBN	C CHIP 50V 1000PF	
C6041	ECUV1H102KBN	C CHIP 50V 1000PF	
C6044	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C6203	ECUV1H332KBN	C CHIP 50V 3300PF	
C6204	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6205	ECUV1H330JCN	C CHIP 50V 33PF	
C6207	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6208	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6209	ECUV1H102KBN	C CHIP 50V 1000PF	
C6211	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6212	ECUV1E104KBN	C CHIP 25V 0.1UF	
C6213	ECEA0JKS331I	ELECTROLYTIC 6.3V 330UF	
C6214	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C6215	ECUV1H272KBN	C CHIP 50V 2700PF	
C6216	ECUV1H103KBN	C CHIP 50V 0.01UF	
C6220	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C6221	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C6302	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6401	ECUV1H104ZFN	C CHIP 50V 0.1UF	
C6402	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6403	ECUV1A105KBN	C CHIP 10V 1UF	
C6404	ECUV1H121JCN	C CHIP 50V 120PF	
C6406	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C6408	ECUV1H222KBN	C CHIP 50V 2200PF	
C6410	ECUV1H103KBN	C CHIP 50V 0.01UF	
C7002	ECUV1H102KBN	C CHIP 50V 1000PF	
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C7007	ECUV1H102KBN	C CHIP 50V 1000PF	
C7008	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

## FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014	FILTER	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L501	ELH5L423	COIL	▲
L501	ELH5L4108	COIL	▲
L501	LLH2601T	COIL	▲
L552	VLPS0113	FERRITE BEAD	
L553	VLQSW07D220M	COIL 22UH	
L803	ELF18D650C	COIL 8.2MH	▲
L803	ELF21V018A	LINE NOISE FILTER	▲
L803	LLN63021A	LINE FILTER 1.7A 8.2MH	▲
L803	LLN63055A	COIL	▲
L1001	ELF15N005A	LINE FILTER 0.5A 18MH	▲
L1001	LSLQ0287	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0166	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0167	LINE FILTER 0.5A 18MH	▲
L1001	VLQS0170	LINE FILTER 0.6A 18MH	▲
L1002	VLQSAB7D220K	COIL 22UH	
L1003	VLQSAB7D100K	COIL 10UH	
L1006	VLPS0083	FILTER	
L3001	VLQSH02R390K	COIL 39UH	
L3002	ELESN101KA	COIL 100UH	
L3005	VLQSH02R330K	COIL 33UH	
L3010	ELESN470KA	COIL 47UH	
L3231	ELESN221KA	COIL 220UH	
L4001	VLQSU06R153K	COIL 15MH	
L4002	ELESN101KA	COIL 100UH	
L4004	VLQSH02R220K	COIL 22UF	
L4101	ELESN471KA	COIL 470UH	
L5901	ELESN101KA	COIL 100UH	
L5902	ELESN470KA	COIL 47UH	

Ref. No.	Part No.	Part Name & Description	Remarks
L6201	ELEXT101KE04	COIL 100UH	
L6401	ELEXT101KE04	COIL 100UH	
L6402	VLPS0111	CHIP BEAD INDUCTOR	
L6403	VLPS0111	CHIP BEAD INDUCTOR	
L6404	VLPS0111	CHIP BEAD INDUCTOR	
L6405	VLPS0111	CHIP BEAD INDUCTOR	
L7002	ELESN100KA	COIL 10UH	

### CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X5501	CSB503F38	CRYSTAL OSCILLATOR	
X5601	VSXS0190-TB	CRYSTAL OSCILLATOR	
X6001	VSXS0784	CRYSTAL OSCILLATOR	

### PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P801	VEKS5808	CONNECTOR CABLE W/OUT PLUG,200V	
P803	VLPS0303	CONNECTOR 2P	
P3001	LSJP0085	CONNECTOR 10P ( H,I,J,K )	
P3001	VJPS0882	CONNECTOR 12P ( L )	
P4001	VJSS0888	FE CONNECTOR 2P	
P4591	VJPS0268	CONNECTOR 2P ( H,I,J,K )	
P4591	VJPS0274	CONNECTOR 4P ( L )	
P6001	VJPS0275	CONNECTOR 5P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

### SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6303	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6309	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	

### FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	XBA1C40NU100	FUSE 125V 4A	▲
F801	VSFS0003A40	FUSE 4A	▲
F1001	VSFS0003A16	FUSE 125V 1.6A	▲
F1001	VSFS0032B16	FUSE 125V 1.6A	▲
F1001	XBA1C16NU100	FUSE 125V 1.6A	▲
PR1001	UNH000600A	IC PROTECTOR 1.5A	▲
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	▲
PR1001	LSSF009A25E	IC PROTECTOR 1.5A	▲
PR1002	UNH000600A	IC PROTECTOR 1.5A	▲
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	▲
PR1002	LSSF009A25E	IC PROTECTOR 1.5A	▲

## RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL801	TSEH0019	RELAY	▲
RL801	LSSY0004	RELAY	▲
RL801	TSEH0005	RELAY,120V	▲
RL801	TSEH8007	RELAY,120V	▲
RL801	TSE1860-1	RELAY,120V	▲

## TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH09K13AZ	TRANSFORMER	
T502	ETE16Z37AY	TRANSFORMER	▲
T551	KFT3AB339F	TRANSFORMER	▲
T1001	ETS28AD2J3NC	SW TRANSFORMER	▲
T1001	LSTP0105	SW TRANSFORMER	▲
T1001	VTPS0041-1	SW TRANSFORMER	▲
T1001	VTPS0042-1	SW TRANSFORMER	▲
T4101	VLTS0367	TRANSFORMER	

## JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	LJP28016A	FRONT AUDIO/VIDEO JACK SOCKET ( H,I,J,K )	
JK4591	LJP28015A	FRONT AUDIO/VIDEO JACK SOCKET ( L )	
JK4701	LJP68005A	EARPHONE JACK SOCKET ( H,I,J,K )	
JK4701	LJP68003A	EARPHONE JACK SOCKET ( L )	

## PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E11	VEPS4032A	AUDIO C.B.A. ( L )	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
244	TUX77809	CLAMPER	
458	XTV3+8J	TAPPING SCREW,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
484	XTW3+10J	TAPPING SCREW,STEEL	
487	XYN3+J8	SCREW W/WASHER,STEEL	
488	XYN3+F6S	SCREW W/WASHER,STEEL	
711	PNA4611M00HC	INFRARED RECEIVER UNIT	
719	VMFS0136	SHEET,NYLON-RAYON	
743	ENG36706G	TUNER,UHF/VHF NR ( H,K )	
743	ENG36709G	TUNER,UHF/VHF NR ( I,J,L )	
751	LML69001A	ANODE LEAD CLAMPER	
767	TUC77626	HEAT SINK	
768	TUC77603-1	HEAT SINK	
769	LUS23005B	HEAT SINK	
771	EYF52BC	FUSE HOLDER	

## 12.3.3. AUDIO C.B.A.

( Model: L )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

## INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC9001	CXA2064M		
IC9201	AN7420-NT	IC, LINEAR	
IC9301	BU4052BCF	IC, CMOS STANDARD LOGIC	E.S.D.
IC9301	CD4052BCM	IC, CMOS STANDARD LOGIC	E.S.D.
IC9302	UPC4570G2-T1	IC, LINEAR	
IC9302	LM833M	IC, LINEAR	

## TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q9001	2SD601A	TRANSISTOR SI NPN CHIP	
Q9001	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q9002	2SD601A	TRANSISTOR SI NPN CHIP	
Q9002	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q9003	2SD601A	TRANSISTOR SI NPN CHIP	
Q9003	2SC2412K146R	TRANSISTOR SI NPN CHIP	
Q9004	2SD601A	TRANSISTOR SI NPN CHIP	
Q9004	2SC2412K146R	TRANSISTOR SI NPN CHIP	

## DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D9001	MA165	DIODE SI	
D9001	1SS119	DIODE SI	
D9001	1SS133T	DIODE SI	
D9301	MA165	DIODE SI	
D9301	1SS119	DIODE SI	
D9301	1SS133T	DIODE SI	

## RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4213	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4214	ERDS2TJ223	CARBON 1/4W 22K	
R4215	ERDS2TJ102	CARBON 1/4W 1K	
R4220	ERDS2TJ102	CARBON 1/4W 1K	
R4221	ERDS2TJ102	CARBON 1/4W 1K	
R9001	EVNCYAA03B14	VARIABLE 10K	
R9002	ERJ6GEYG683V	MGF CHIP 1/10W 68K	
R9003	EVNDCAA03B14	VARIABLE 10K	
R9004	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R9005	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R9006	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R9007	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R9008	EVMAASA00B53	VARIABLE 5K	
R9009	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9010	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9013	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R9014	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R9015	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R9016	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R9017	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R9018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9019	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9020	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R9021	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9022	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R9201	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9202	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9203	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9204	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R9205	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9206	EVMAASA00B53	VARIABLE 5K	
R9207	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9208	ERDS2TJ392T	CARBON 1/4W 3.9K	
R9209	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R9210	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R9211	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R9212	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9213	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9303	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

Ref. No.	Part No.	Part Name & Description	Remarks
R9307	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R9308	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9309	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R9310	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

## CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4226	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9001	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9002	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9003	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9004	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9005	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9006	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9007	ECUV1H562KBN	C CHIP 50V 5600PF	
C9008	ECUV1E123KBN	C CHIP 25V 0.012UF	
C9009	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9010	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9011	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9012	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9013	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9014	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9015	ECEA1HKA3R3I	ELECTROLYTIC 50V 3.3UF	
C9016	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9017	ECUV1E473KBN	C CHIP 25V 0.047UF	
C9018	ECUV1H272KBN	C CHIP 50V 2700PF	
C9019	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C9020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C9201	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C9202	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9203	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9204	ECQP1H102JZ3	POLYESTER 50V 1000PF	
C9205	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9206	ECEA1HKA3R3I	ELECTROLYTIC 50V 3.3UF	
C9207	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9208	ECUV1H223KBN	C CHIP 50V 0.022UF	
C9209	ECUV1H223KBN	C CHIP 50V 0.022UF	
C9210	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9211	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9301	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9302	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C9303	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9304	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C9305	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9306	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C9307	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9308	ECUV1H103ZFN	C CHIP 50V 0.01UF	

## COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L9001	ELESN101KA	COIL 100UH	
L9201	ELESN101KA	COIL 100UH	

## PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4201	VJHS0299	PACK PIN 9P	
P4202	VJHS0290	PACK PIN 10P	
P4203	VJHS0298	PACK PIN 8P	
P4204	VJHS0298	PACK PIN 8P	
P4206	VJHS0295	PACK PIN 5P	

## MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
713	VMAS1912	P.C.B. SUPPORT ANGLE	

## 12.3.4. CAPSTAN STATOR C.B.A. NR

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC2501	AN3846SC	IC, LINEAR	

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R2501	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2502	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2505	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

### CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C2504	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2506	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2507	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C2508	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2509	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2510	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2511	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C2517	ECUV1E104KBN	C CHIP 25V 0.1UF	
C2519	ECUV1H102KBN	C CHIP 50V 1000PF	
C2520	ECUV1C225ZFN	C CHIP 16V 2.2UF	
C2521	ECUV1C225ZFN	C CHIP 16V 2.2UF	
C2522	ECUV1C225ZFN	C CHIP 16V 2.2UF	

### MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
491	XYN2+J7	SCREW W/WASHER,STEEL	
731(IC2505)	EZMPS300F12	MR HEAD	
732(P2502)	LSJS0097	CONNECOR 12P	
733	LSMA0384	BACK PLATE,STEEL	

## 12.3.5. HEAD AMP C.B.A.

( Model: A, B, C, D, E, H, I, J, K )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3371SB	IC, LINEAR	

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3503	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3507	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

### CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C3506	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3508	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3511	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3512	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3513	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3528	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3529	ECUV1H103ZFN	C CHIP 50V 0.01UF	

### COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	ELESN101KA	COIL 100UH	

### PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	LSJS0093	CONNECTOR 10P	
P4091	LSJWM6N085AA	CONNECTOR CABLE W/OUT PLUG,48V	

### 12.3.6. HEAD AMP C.B.A.

( Model: F, G, L )

**COMPARISON CHART OF MODELS & MARKS**

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

**INTEGRATED CIRCUITS**

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3361SB	IC, LINEAR	

**RESISTORS**

Ref. No.	Part No.	Part Name & Description	Remarks
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	

**CAPACITORS**

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C3506	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3507	ECUV1H102KBN	C CHIP 50V 1000PF	
C3508	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3511	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3512	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3513	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3519	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3520	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3523	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3524	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3528	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3529	ECUV1H103ZFN	C CHIP 50V 0.01UF	
C3532	ECUV1E104ZFN	C CHIP 25V 0.1UF	
C3533	ECUV1H103ZFN	C CHIP 50V 0.01UF	

**COILS**

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	ELESN101KA	COIL 100UH	

**PIN HEADERS**

Ref. No.	Part No.	Part Name & Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	VJSS0883	CONNECTOR 12P	
P4091	LSJWM6N085AA	CONNECTOR CABLE W/OUT PLUG,48V	

### 12.3.7. CRT C.B.A. ( Model: A, B, C, D, E, F, G )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC1473-QNC	TRANSISTOR SI NPN	
Q351	2SC1473A(Q)	TRANSISTOR SI NPN	
Q351	2SC2482-TPE6	TRANSISTOR SI NPN	
Q351	2SC4015-NTV2	TRANSISTOR SI NPN	
Q352	2SC1473-QNC	TRANSISTOR SI NPN	
Q352	2SC1473A(Q)	TRANSISTOR SI NPN	
Q352	2SC2482-TPE6	TRANSISTOR SI NPN	
Q352	2SC4015-NTV2	TRANSISTOR SI NPN	
Q353	2SC1473-QNC	TRANSISTOR SI NPN	
Q353	2SC1473A(Q)	TRANSISTOR SI NPN	
Q353	2SC2482-TPE6	TRANSISTOR SI NPN	
Q353	2SC4015-NTV2	TRANSISTOR SI NPN	

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERG1ANJ153H	METAL OXIDE 1W 15K	
R352	ERG1ANJ153H	METAL OXIDE 1W 15K	
R353	ERG1ANJ153H	METAL OXIDE 1W 15K	
R354	ERD25TJ272T	CARBON 1/4W 2.7K	
R356	ERD25TJ272T	CARBON 1/4W 2.7K	
R357	ERDS2TJ392T	CARBON 1/4W 3.9K	
R358	ERDS2TJ392T	CARBON 1/4W 3.9K	
R359	ERDS2TJ392T	CARBON 1/4W 3.9K	
R360	ERDS2TJ391T	CARBON 1/4W 390	
R361	ERDS2TJ391T	CARBON 1/4W 390	
R362	ERDS2TJ391T	CARBON 1/4W 390	
R363	ERDS2TJ181T	CARBON 1/4W 180	
R364	ERDS2TJ181T	CARBON 1/4W 180	
R365	ERDS2TJ181T	CARBON 1/4W 180	
R366	ERD25TJ272T	CARBON 1/4W 2.7K	

### CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH391KB	CERAMIC 50V 390PF	
C352	VCYSARH391KB	CERAMIC 50V 390PF	
C353	VCYSARH471KB	CERAMIC 50V 470PF	
C354	VCKSKZM102KB	CERAMIC 2KV1000PF	

### PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJWS4MS330BB	CONNECTOR CABLE W/OUT PLUG,12V	
P352	VJWS4NS265BB	CONNECTOR CABLE W/OUT PLUG, 180V	
P353	VJSS3333	1PIN SOCKET	
P355	LJP65001A	CRT SOCKET	⚠

### MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
153	TMM7443-1	CLAMPER	

### 12.3.8. CRT C.B.A.

( Model: H, I, J, K, L )

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
PVQ-1311	A	PV-C1351W	G
PV-C1321	B	PV-C2011	H
PV-C1331W	C	PV-C2021	I
VV-1301	D	PV-C2031W	J
VV-1311W	E	VV-2001	K
PV-C1341	F	PV-C2061	L

### TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC3063	TRANSISTOR SI NPN	
Q351	2SC3271F(N)	TRANSISTOR SI NPN	
Q351	2SC3619	TRANSISTOR SI NPN	
Q352	2SC3063	TRANSISTOR SI NPN	
Q352	2SC3271F(N)	TRANSISTOR SI NPN	
Q352	2SC3619	TRANSISTOR SI NPN	
Q353	2SC3063	TRANSISTOR SI NPN	
Q353	2SC3271F(N)	TRANSISTOR SI NPN	
Q353	2SC3619	TRANSISTOR SI NPN	

### RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERG2ANJ153H	METAL OXIDE 2W 15K	
R352	ERG2ANJ153H	METAL OXIDE 2W 15K	
R353	ERG2ANJ153H	METAL OXIDE 2W 15K	
R354	ERD25TJ272T	CARBON 1/4W 2.7K	
R355	ERD25TJ272T	CARBON 1/4W 2.7K	
R356	ERD25TJ272T	CARBON 1/4W 2.7K	
R357	ERDS2TJ392T	CARBON 1/4W 3.9K	
R358	ERDS2TJ392T	CARBON 1/4W 3.9K	
R359	ERDS2TJ392T	CARBON 1/4W 3.9K	
R360	ERDS2TJ391T	CARBON 1/4W 390	
R361	ERDS2TJ391T	CARBON 1/4W 390	
R362	ERDS2TJ391T	CARBON 1/4W 390	
R363	ERDS2TJ121T	CARBON 1/4W 120	
R364	ERDS2TJ121T	CARBON 1/4W 120	
R365	ERDS2TJ121T	CARBON 1/4W 120	

### CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH471KB	CERAMIC 50V 470PF	
C352	VCYSARH471KB	CERAMIC 50V 470PF	
C353	VCYSARH561KB	CERAMIC 50V 560PF	
C354	VCKSKZM102KB	CERAMIC 2KV1000PF	

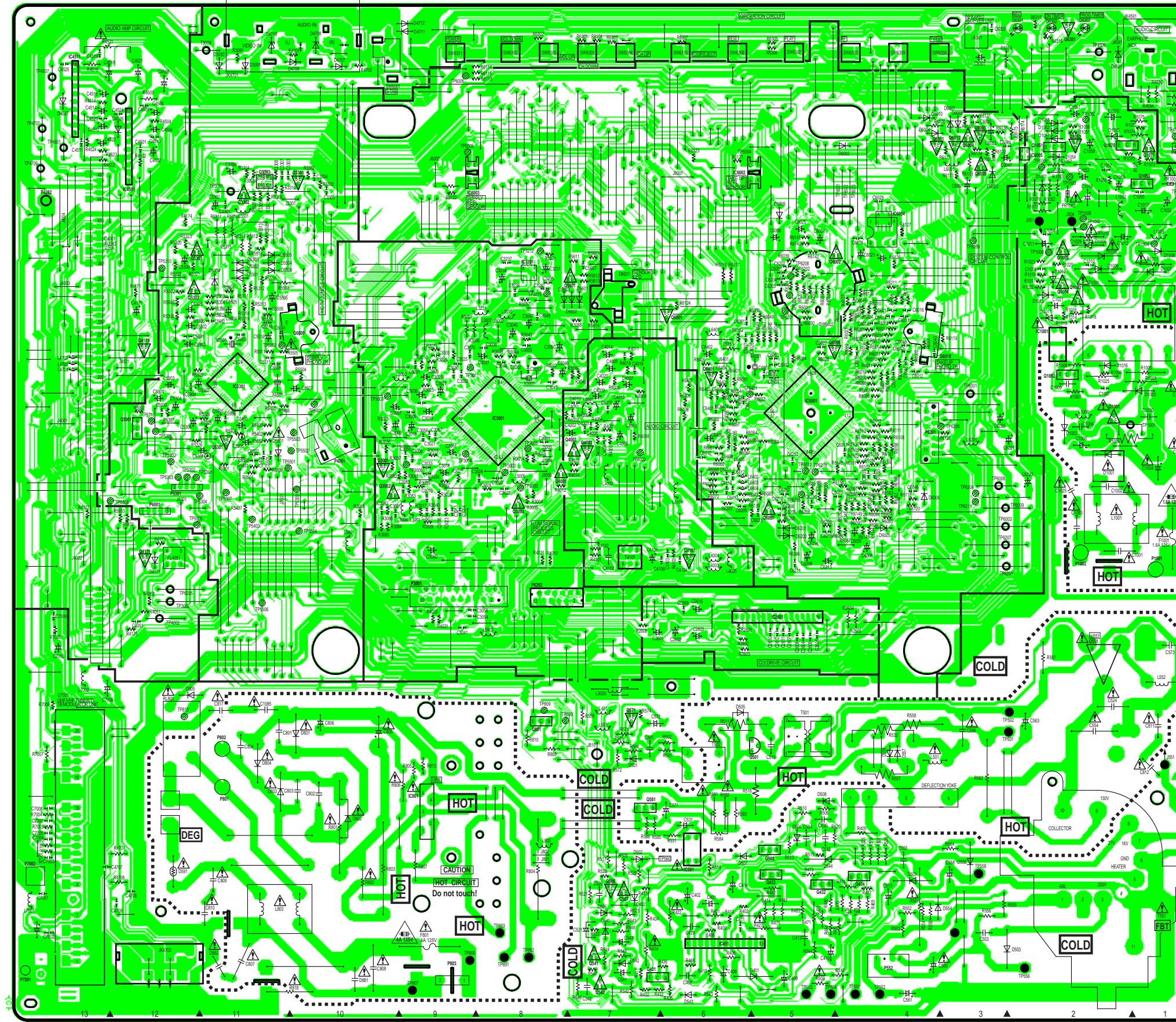
### PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJWS4MS410BB	CONNECTOR CABLE W/OUT PLUG,12V	
P352	VJWS4NS370BB	CONNECTOR CABLE W/OUT PLUG,180V	
P353	LJP25007A	CRT SOCKET	
P357	VJSS3333	1PIN SOCKET	

### MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
153	TMM7443-1	CLAMPER	

## TV/VCR MAIN C.B.A. VEPS3096C (H, K) / VEPS3096B (I, J) / VEPS3096A (L)



## COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N'UTILISER QUE DES FUSIBLES DE MÊME  
TYPE 4A 125V**



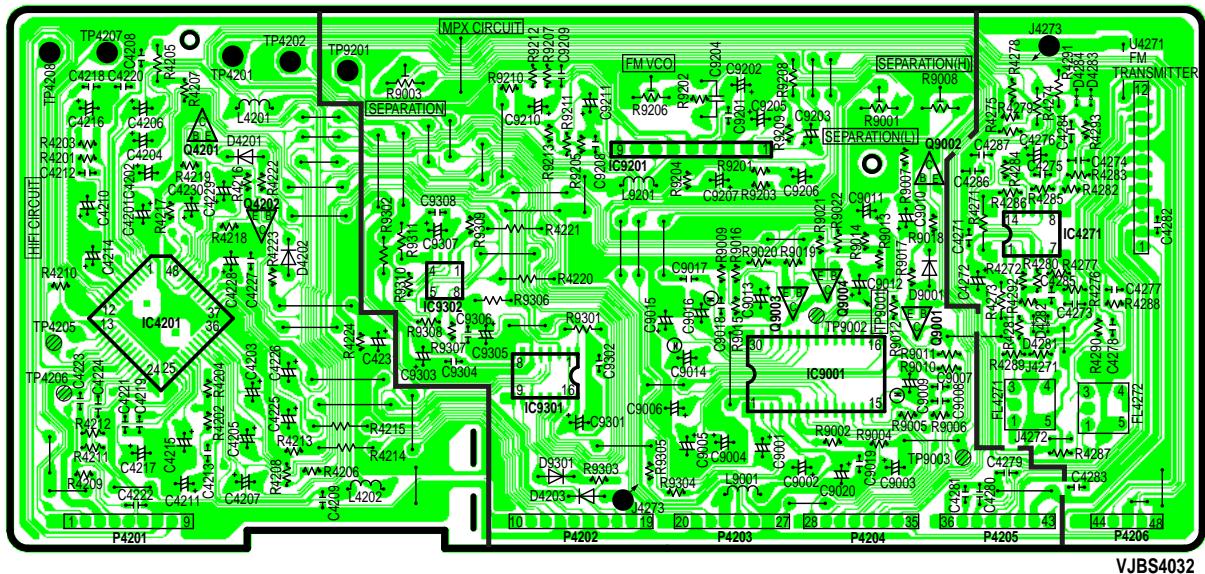
**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N'I UTILISER QUE DES FUSIBLES DE MÉME  
TYPE 1.6A 125V**

**NOTE:** CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

**NOTE:** CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

# AUDIO C.B.A. VEPS4032A (L)



VJBS4032

NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

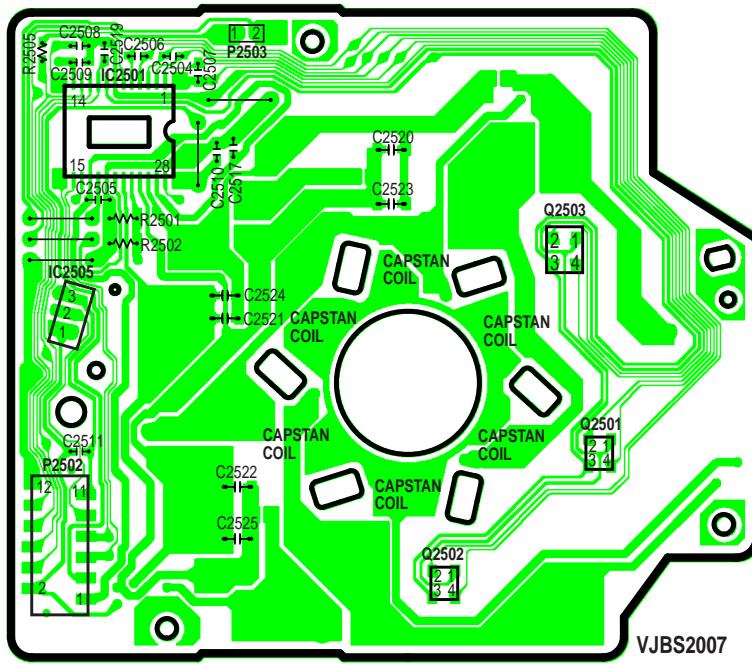
NOTE:

CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

# CAPSTAN STATOR C.B.A. VEMS0342



NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:

WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE  
TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."  
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

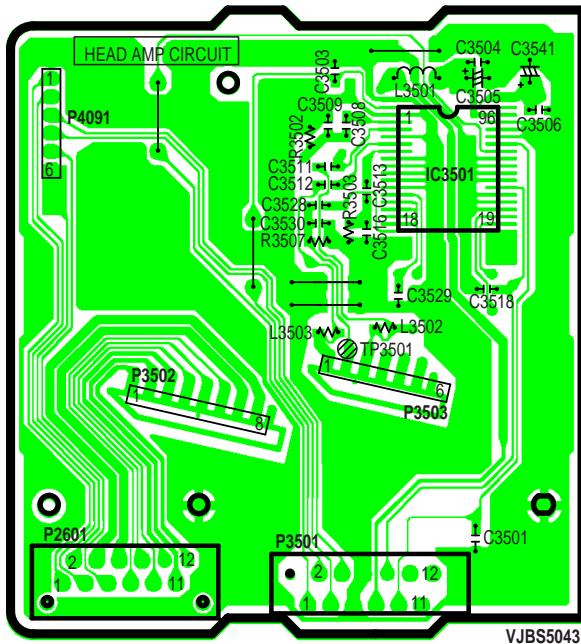
NOTE:

CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

NOTE:

THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.  
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.  
(Q2501, Q2502, Q2503, CAPSTAN COIL)

# HEAD AMP C.B.A. VEPS5043A (A, B, C, D, E, H, I, J, K)



NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

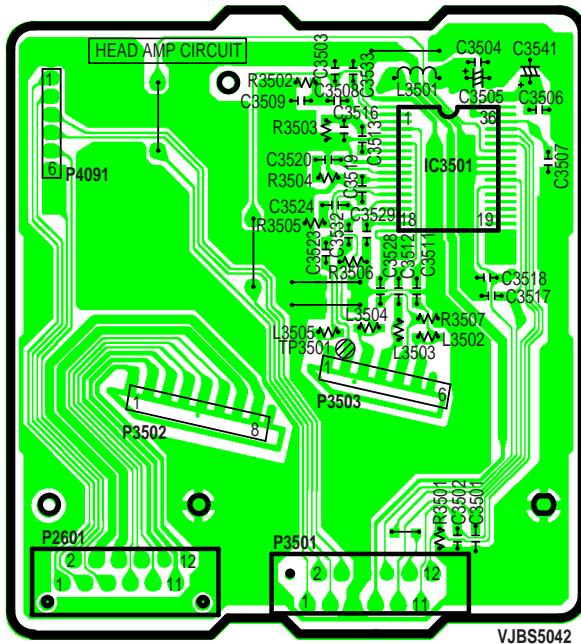
NOTE:

CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

# HEAD AMP C.B.A. VEPS5042A (F, G, L)



NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:

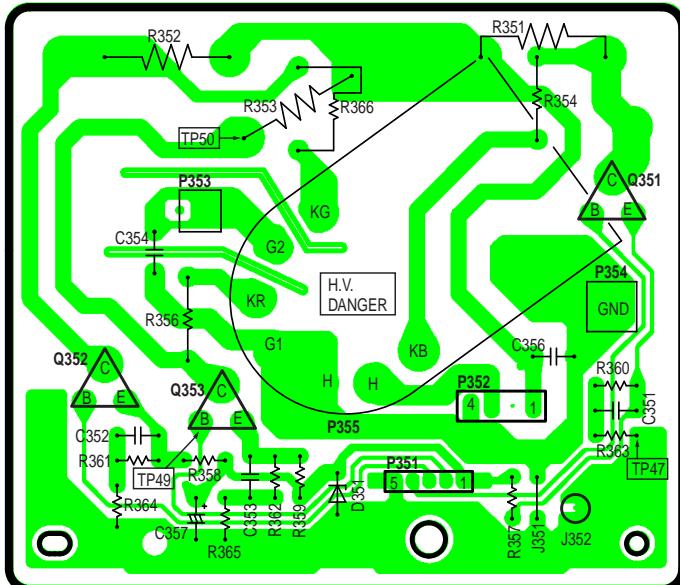
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

# CRT C.B.A. LRP63004C (A, B, C, D, E, F, G)

CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



LRP63004

NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:

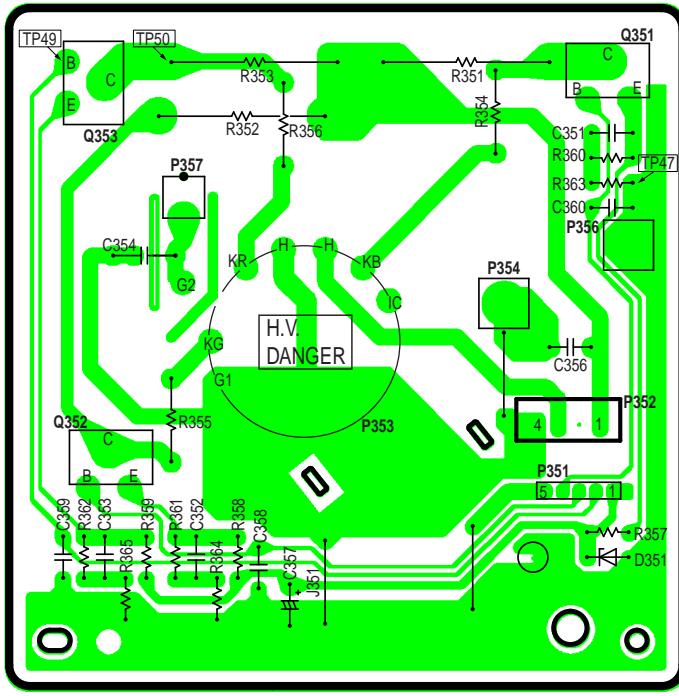
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

# CRT C.B.A. LRP63022A (H, I, J, K, L)

CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



LRP63022

NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:

CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

## 1. Important safety notice

Components identified by the sign  have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

## 2. Do not use the part number shown on this drawing for ordering.

The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

## 3. Use only original replacement parts:

To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

## 4. Parts different in shape or size may be used.

However, only interchangeable parts will be supplied as service replacement parts.

## 5. Test point information

① :Test point with a jumper wire across a hole in P.C.B.

 :Test point with a component lead on the foil side.

 :Test point with no test pin.

 :Test point with a test pin.

## Schematic Diagram Notes

### 1. Indication for Zener Voltage of Zener Diodes

The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

Example:

(6.2V).....Zener Voltage

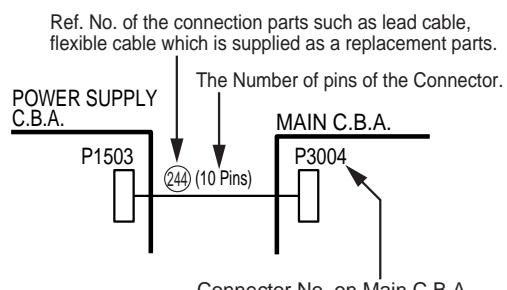
### 2. How to identify Connectors

Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.

Use the interconnection schematic diagram to find the connection between associated connectors.

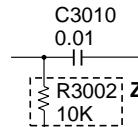
Example:

The connections between C.B.A.s are shown below.



## 3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

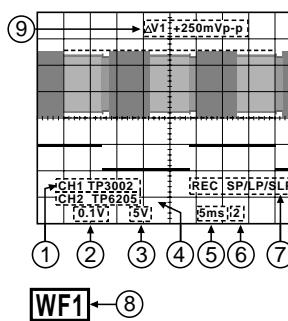
Example:



## 4. The part number shown on this drawing is only main part number, except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

## Signal Waveform Note

How to read Signal Waveform



- ① Connecting Point
- ② Volts/Div
- ③ Volts/Div
- ④ Connecting Point
- ⑤ Time/Div
- ⑥ Trigger Channel of the scope  
(1:CH1,2:CH2)
- ⑦ Operation Mode of VCR
- ⑧ Waveform Point on Schematic
- ⑨  $\Delta V1$ :Peak to Peak

## Voltage Chart Note

Voltage Measurement

a. Color bar signal in SP mode.

b. ---:Unmeasurable or not necessary to measure.

## Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.

For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:

Circuit Board Layout includes components which are not used.

COMPARISON CHART  
OF MODELS & MARKS

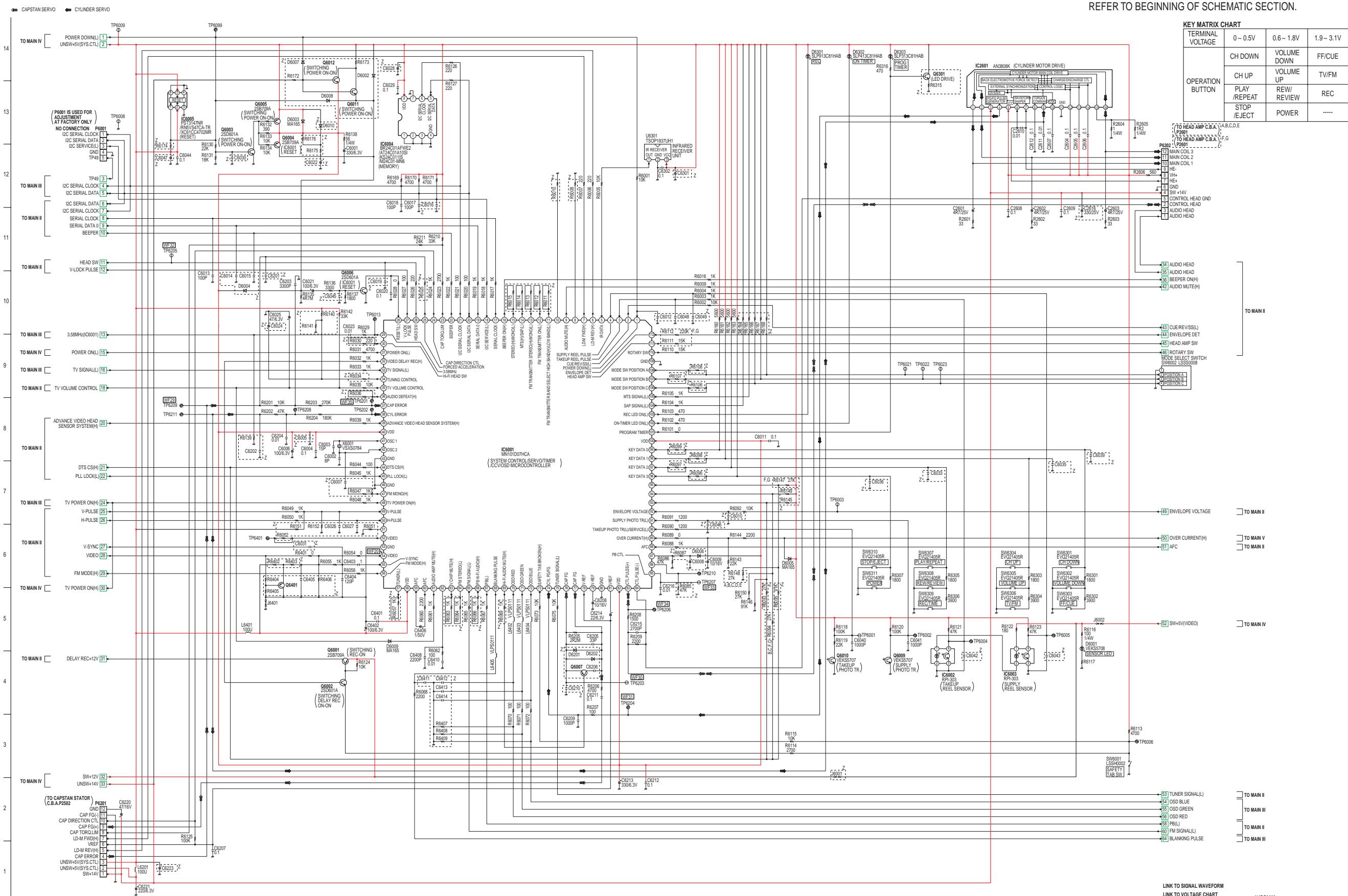
MODEL	MARK
PVO-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

MAIN I (SYSTEM CONTROL/SERVO/CCV/OSD/OPERATION/CYLINDER DRIVE) SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

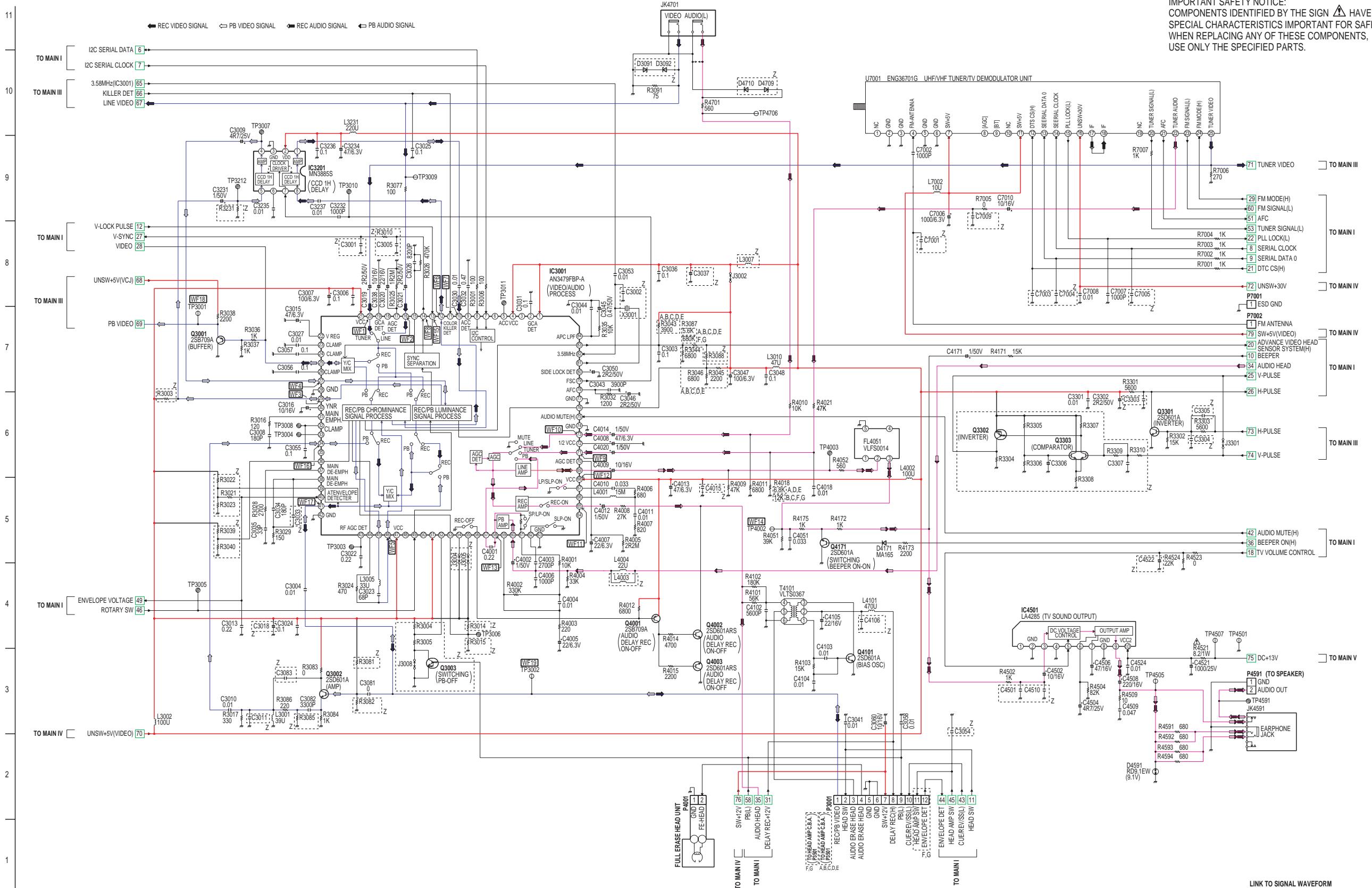
COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PVC-1321	B
PVC-1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PVC-1351W	G
PVC-2011	H
PVC-2021	I
PVC-2031W	J
VV-2001	K
PVC-2061	L
Not Used	Z



# MAIN II (SIGNAL PROCESS/AUDIO/DEMODULATOR) SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

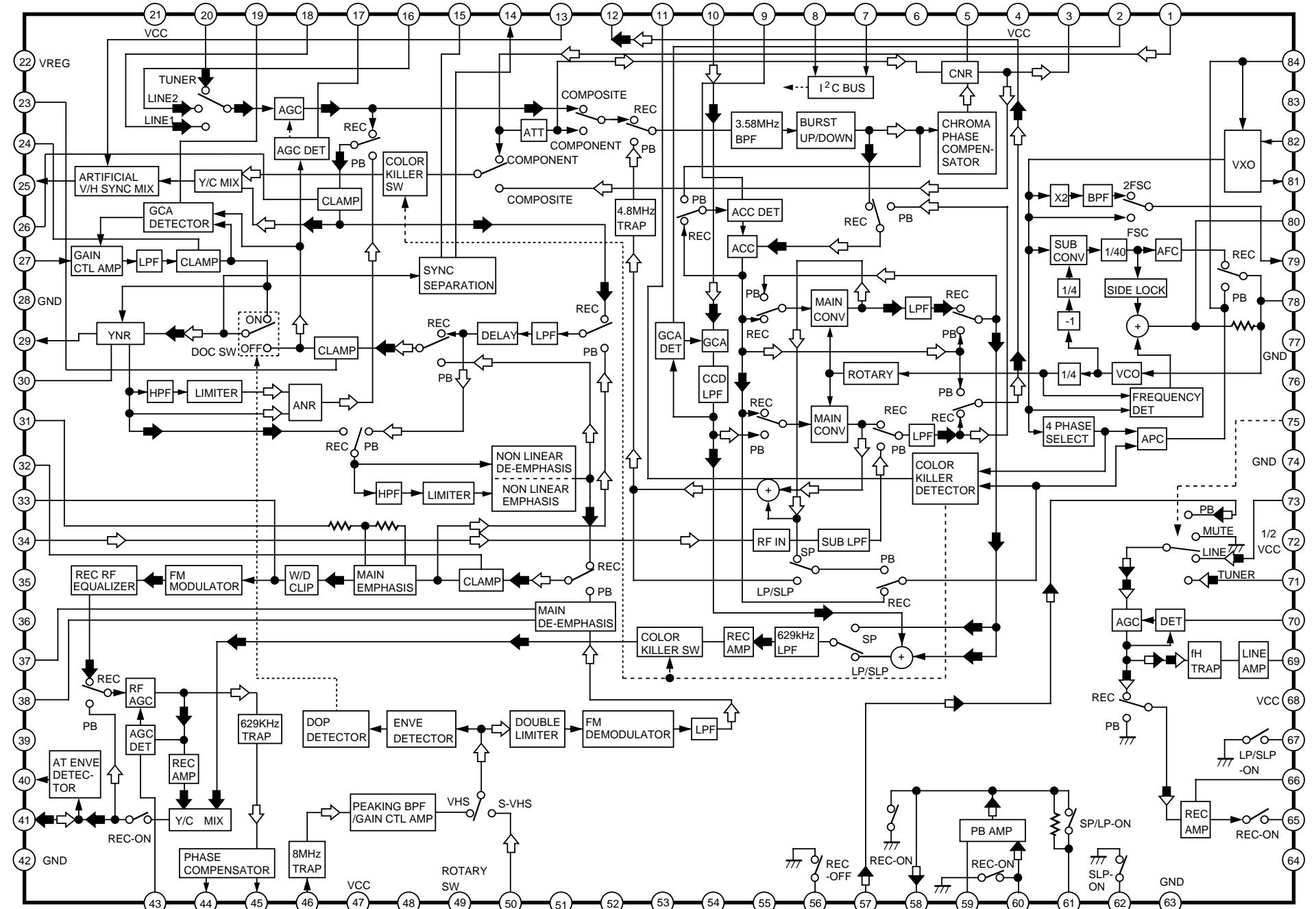
MODEL	MARK
PVQ-1311	A
PVC-1321	B
PVC-1313W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z



IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

# IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A

REC VIDEO SIGNAL    PB VIDEO SIGNAL    REC AUDIO SIGNAL    PB AUDIO SIGNAL



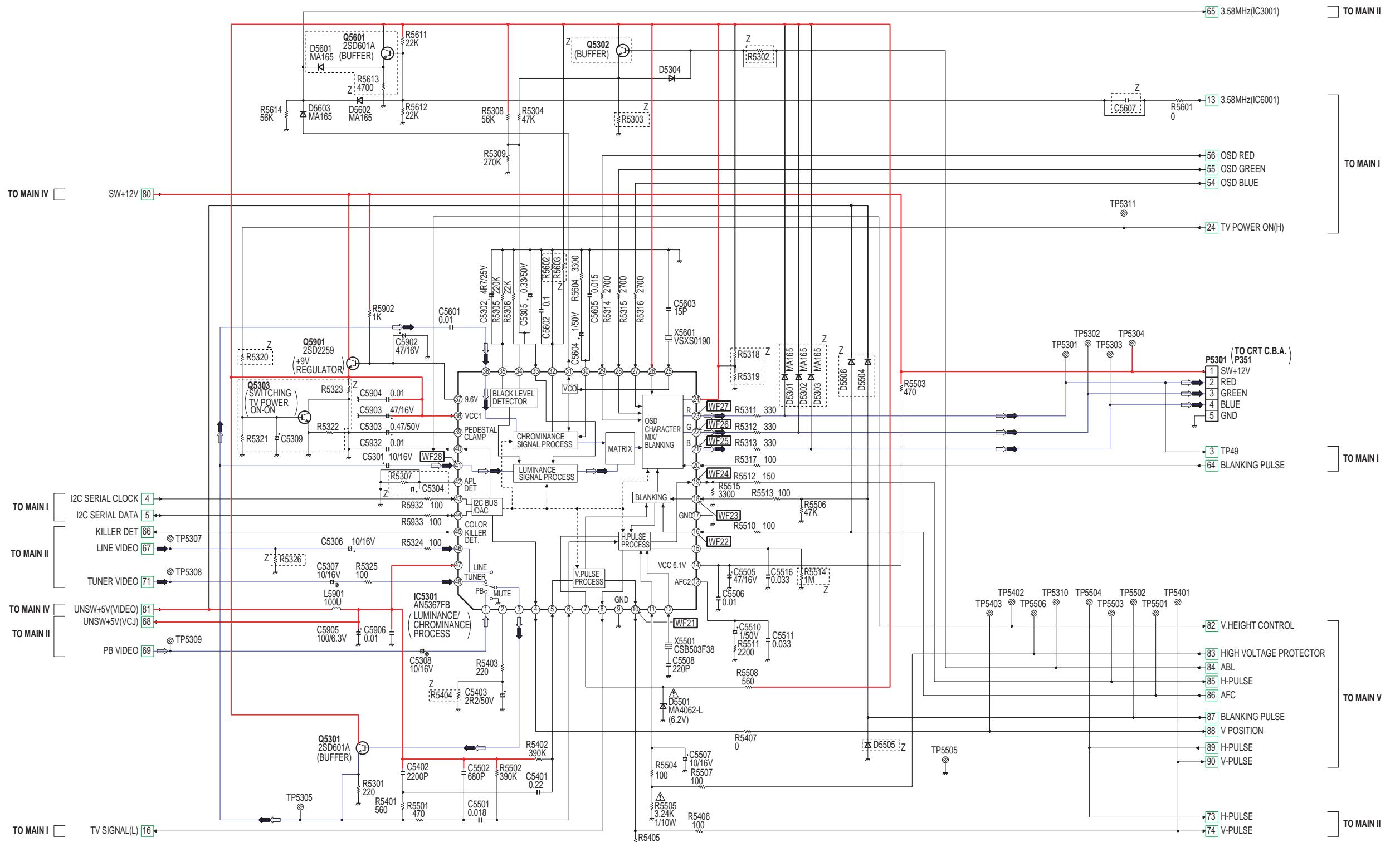
## MAIN III (TV Y/C PROCESS) SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

← REC VIDEO SIGNAL      ↔ PB VIDEO SIGNAL

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

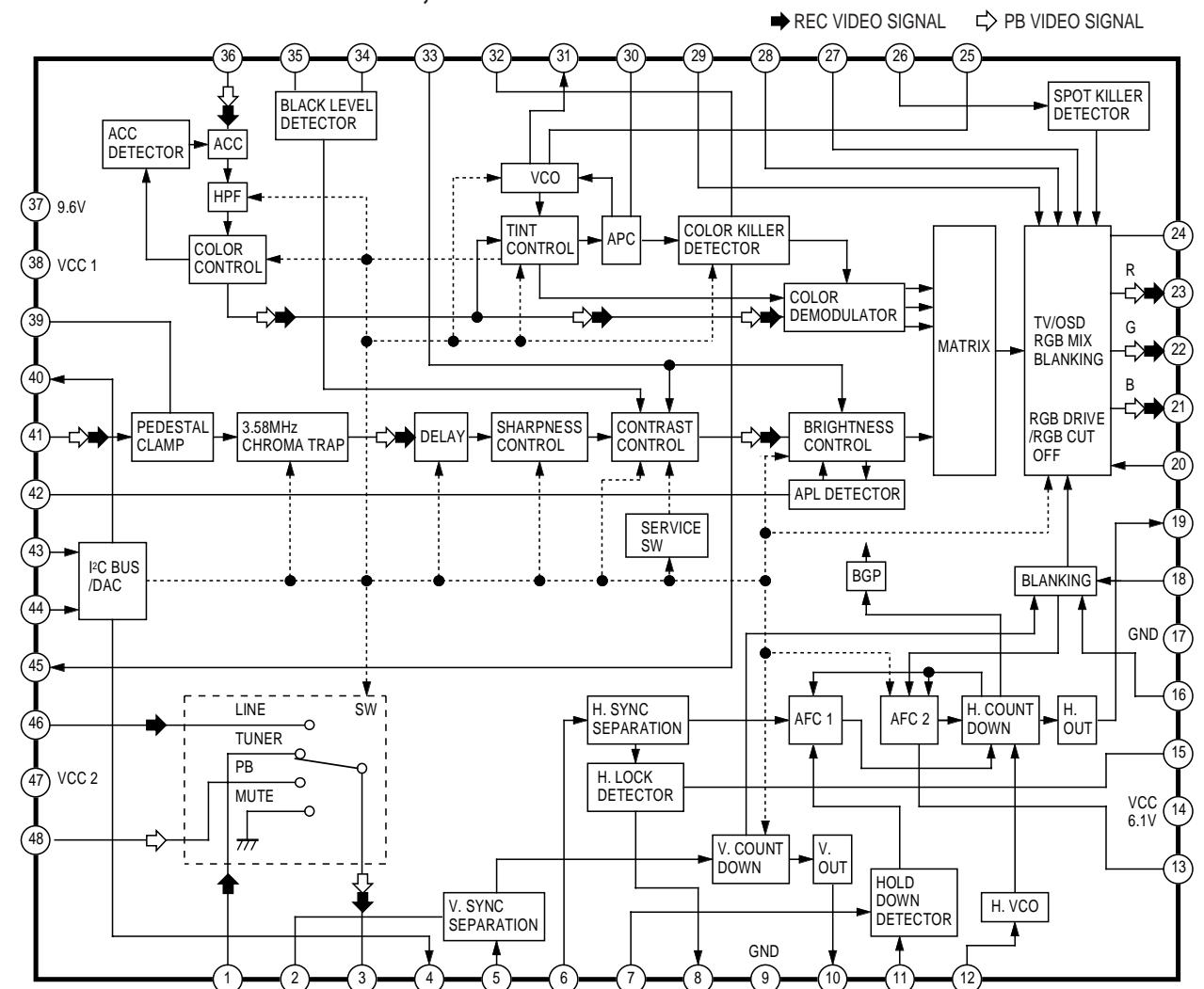
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VW-2001	K
PV-C2061	L
Not Used	Z



[LINK TO SIGNAL WAVEFORM](#)  
[LINK TO VOLTAGE CHART](#)

**IC5301 LUMINANCE/CHROMINANCE PROCESS**  
**IC-DETAIL BLOCK DIAGRAM, AN5367FB**



# MAIN IV (POWER SUPPLY) SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

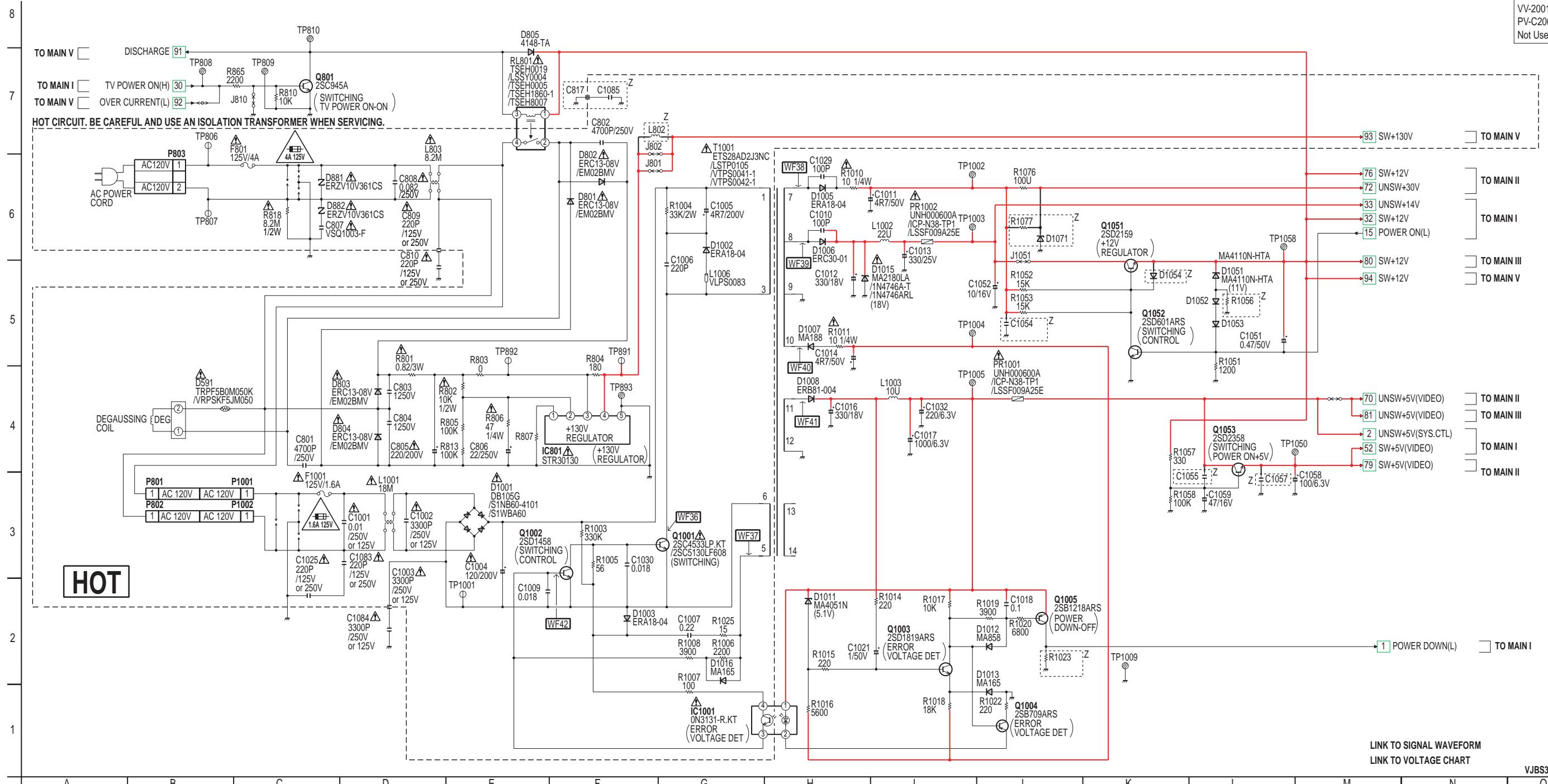
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLES DE MÊME  
TYPE 4A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLES DE MÊME  
TYPE 1.6A 125V

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.



LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

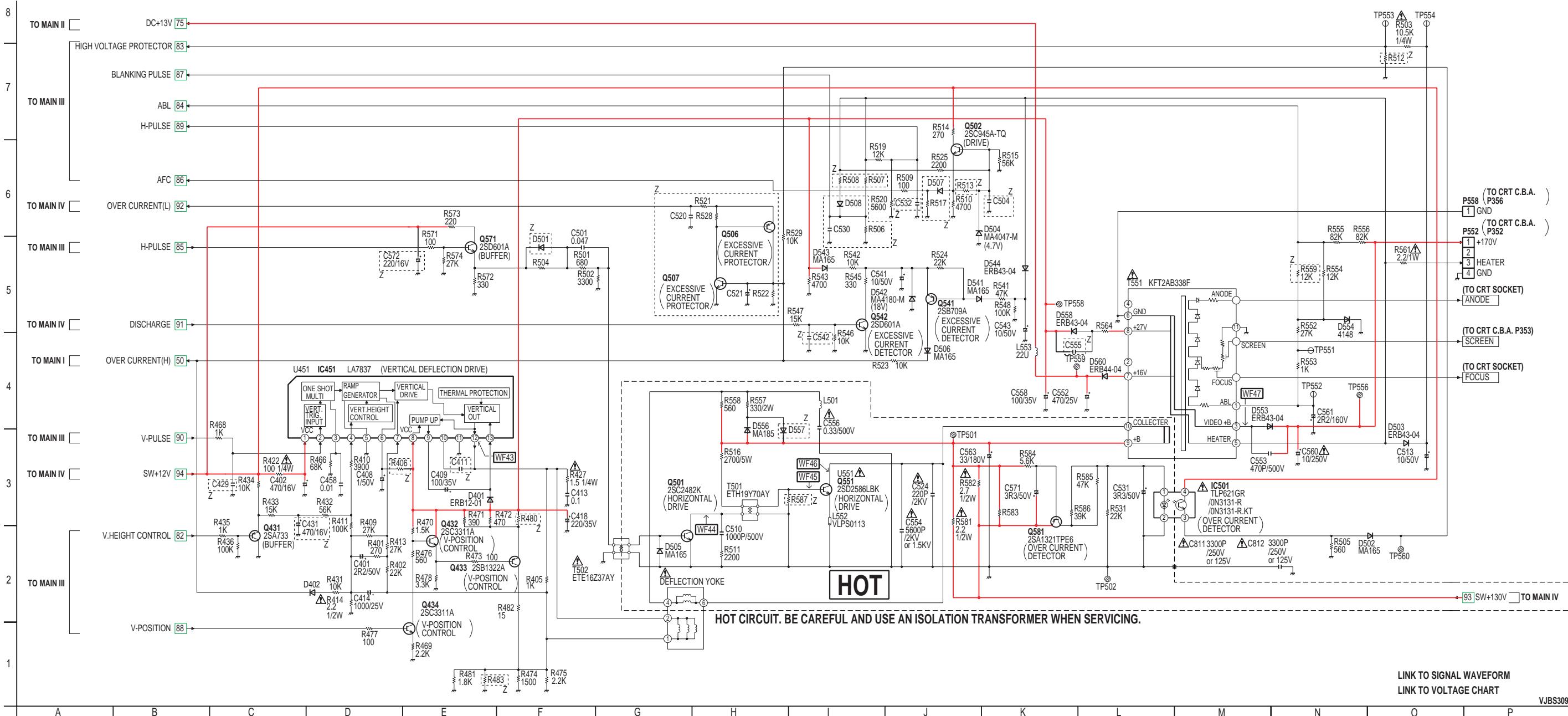
VJBS3098

## **MAIN V (TV) SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)**

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

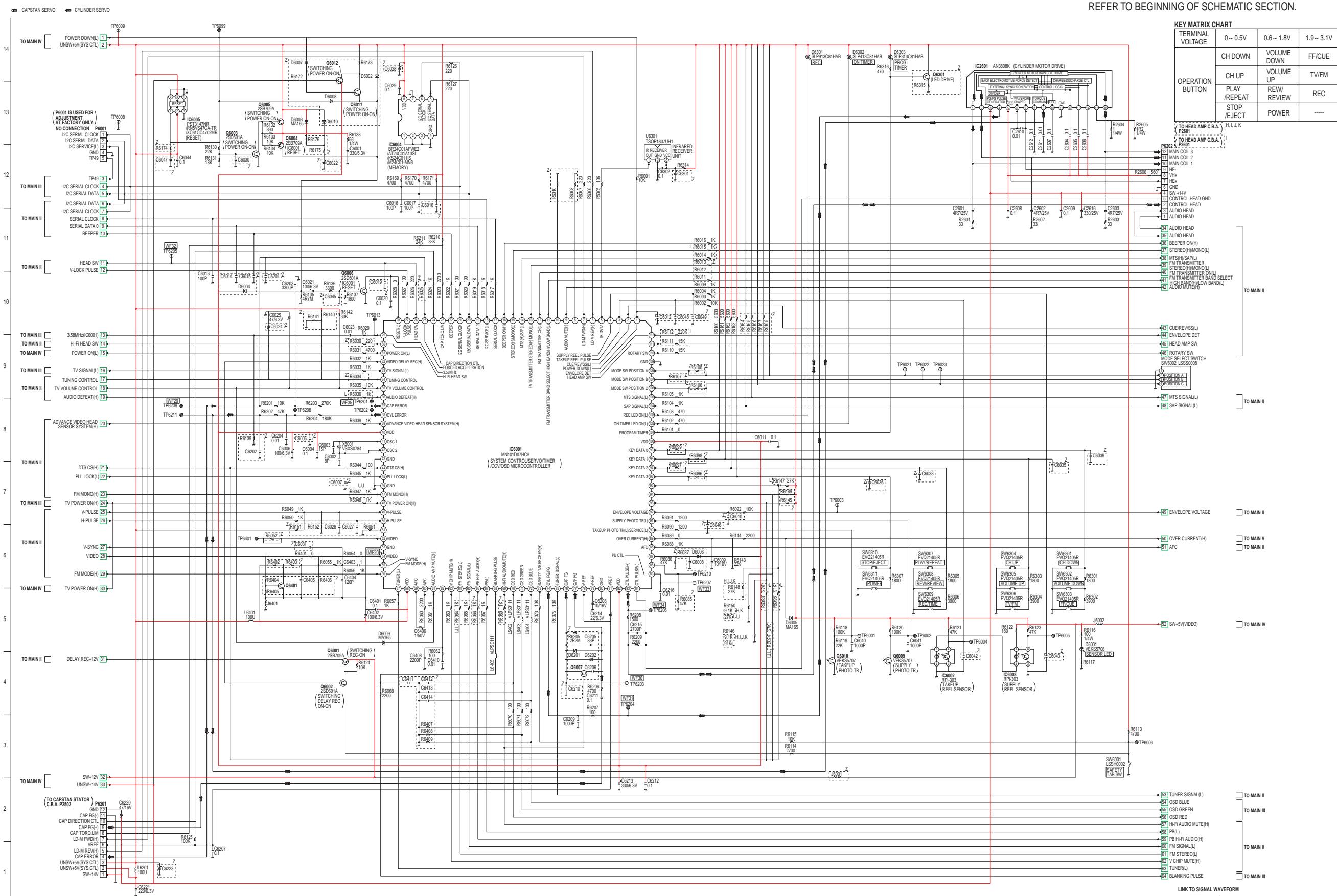
**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.



MAIN I (SYSTEM CONTROL/SERVO/CCV/OSD/OPERATION/CYLINDER DRIVE) SCHEMATIC DIAGRAM (H, I, J, K, L)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
PV-1301	D
PV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
PV-2001	K
PV-C2061	L
Not Used	Z

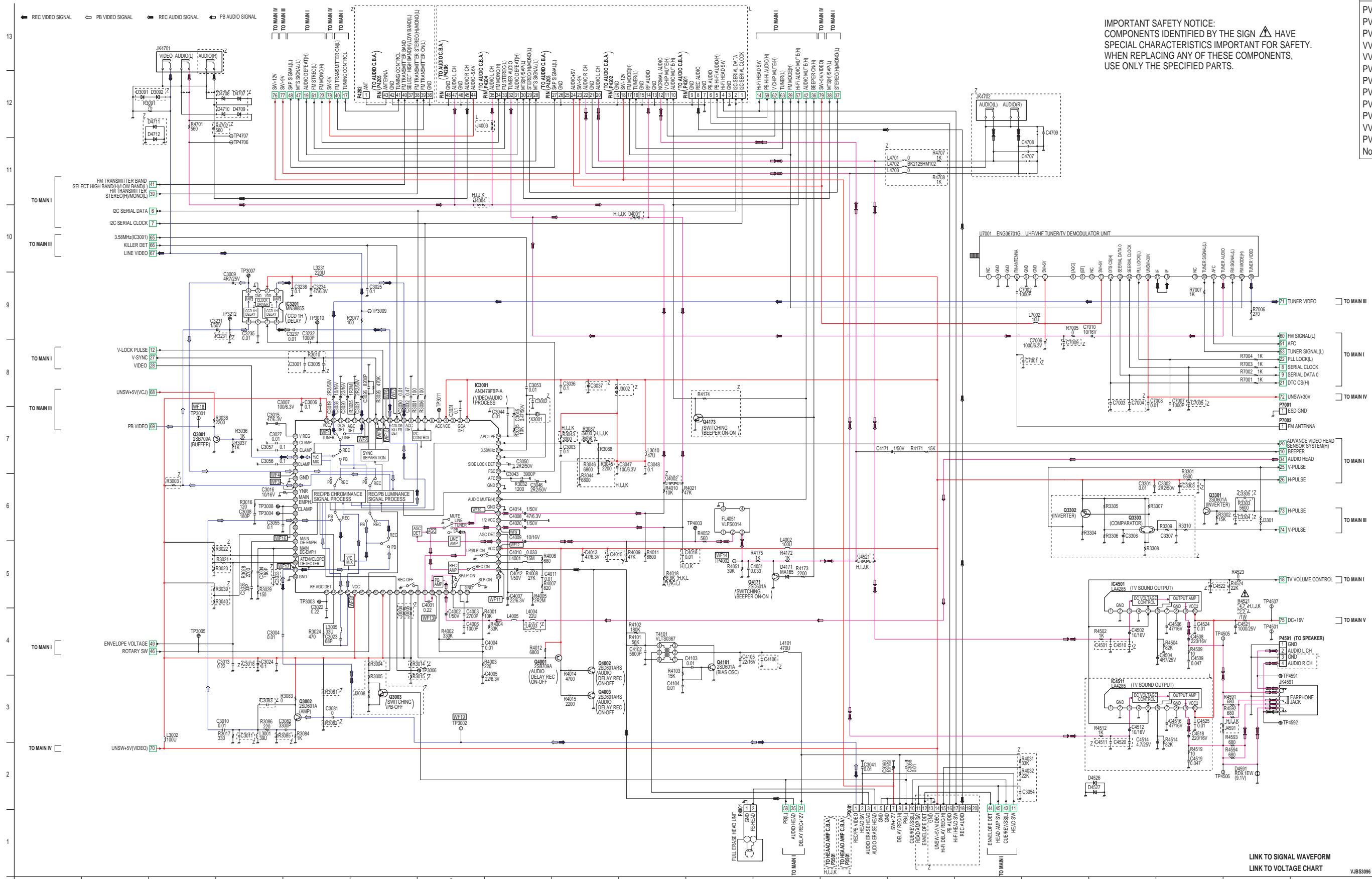


# MAIN II (SIGNAL PROCESS/AUDIO/DEMODULATOR) SCHEMATIC DIAGRAM (H, I, J, K, L)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PVC-1321	B
PV-C131W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

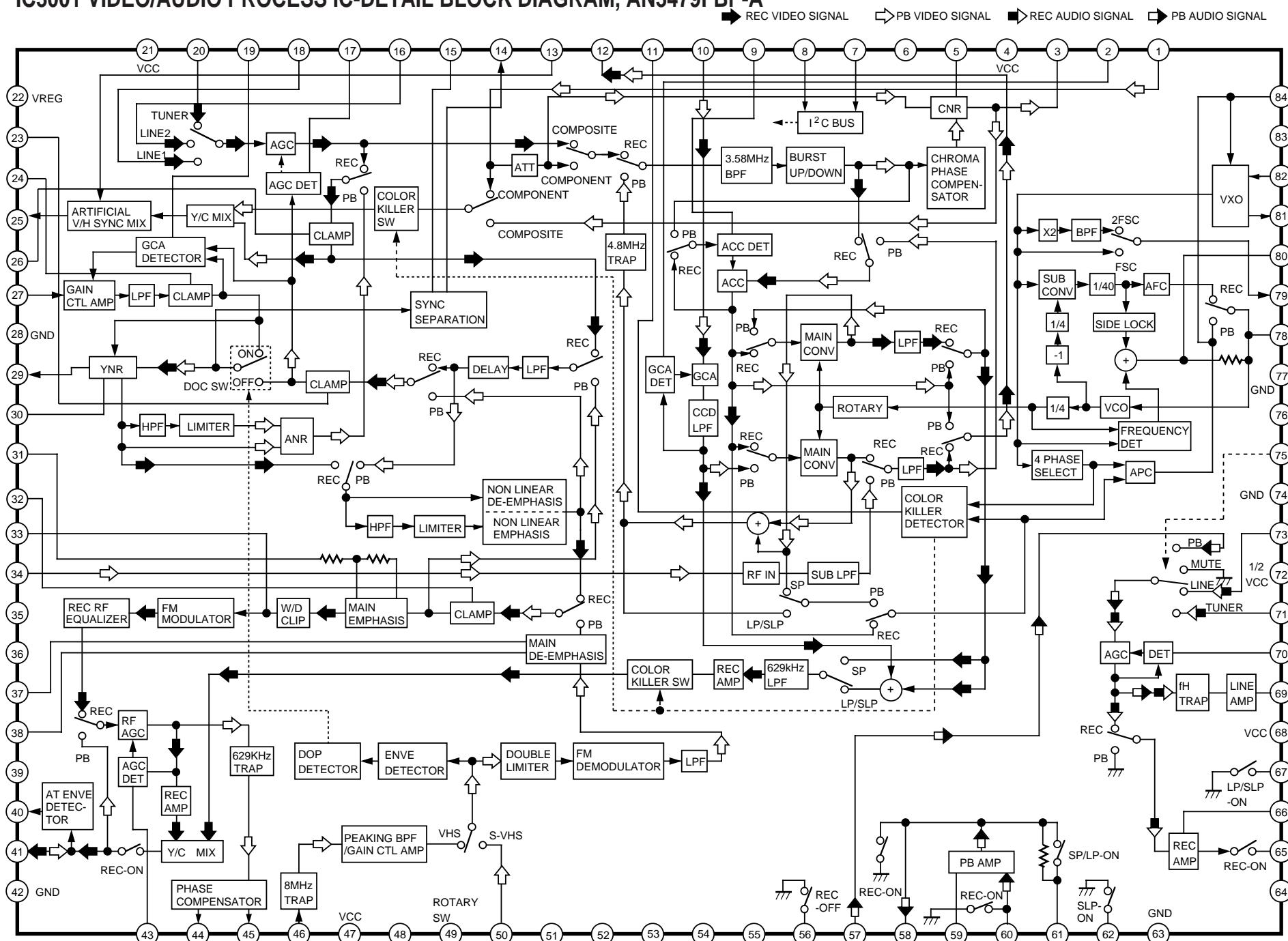
IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.



LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

VJBS3096

# IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A

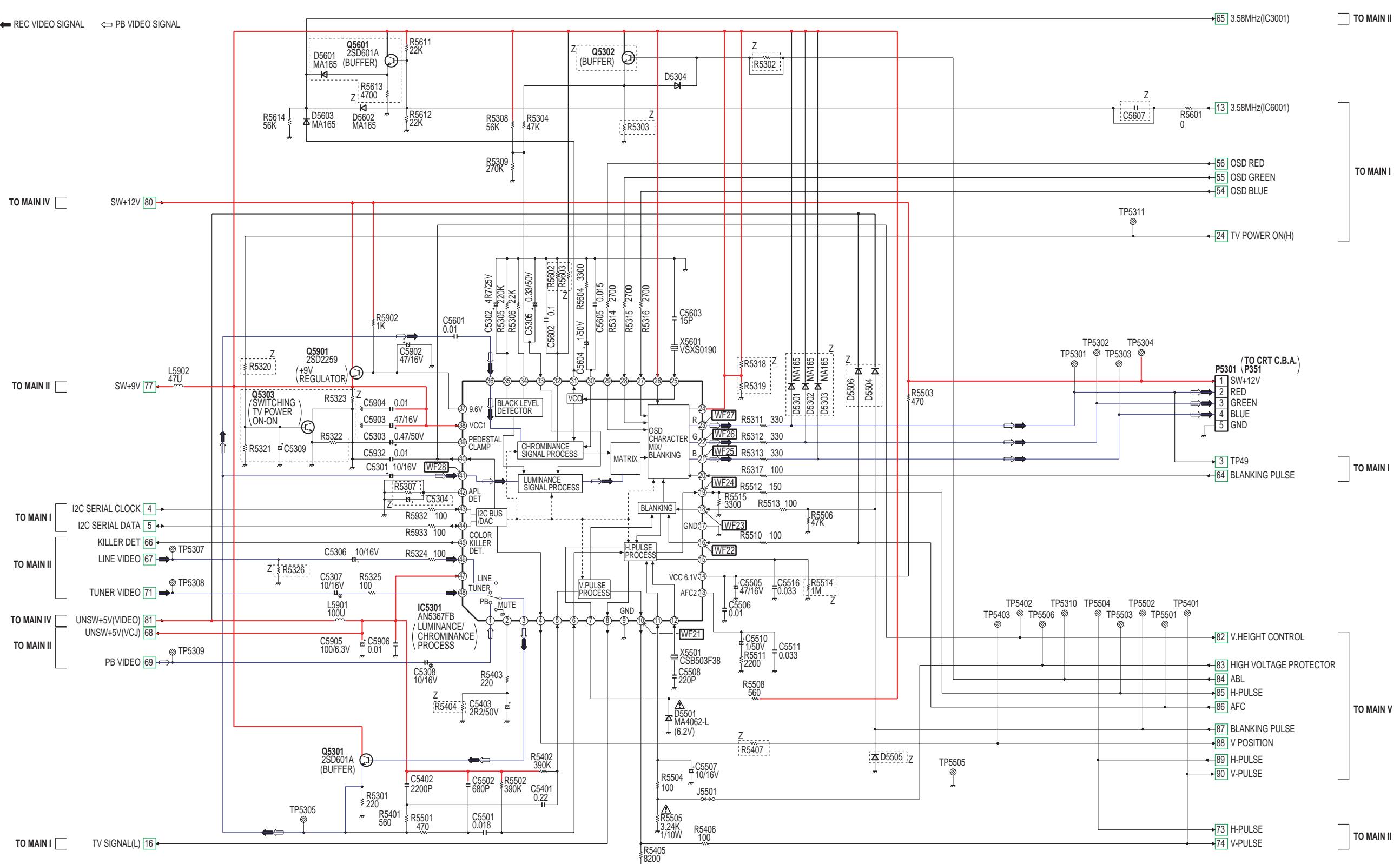


# MAIN III (TV Y/C PROCESS) SCHEMATIC DIAGRAM (H, I, J, K, L)

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

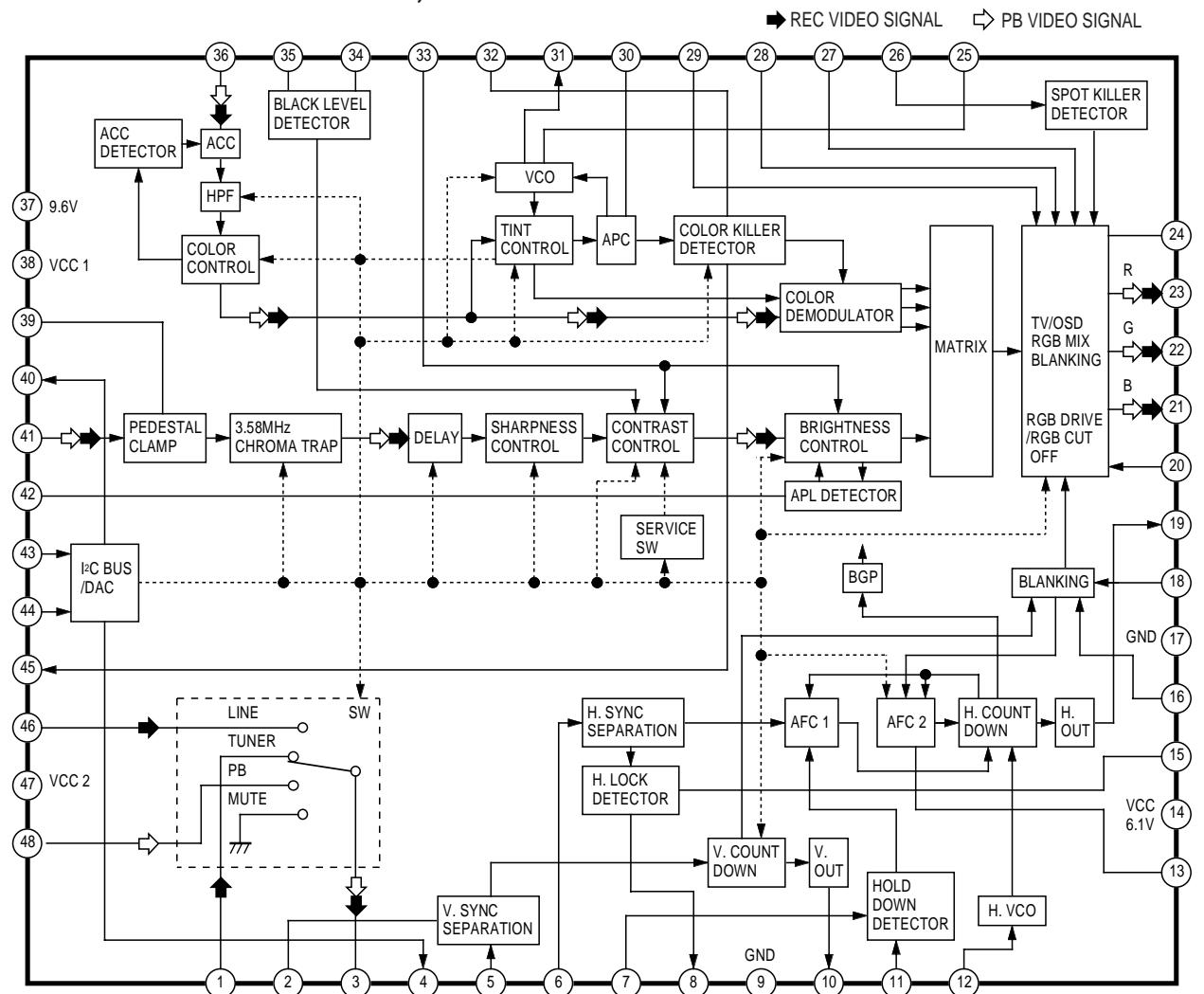
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C131W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z



LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

VJBS3096

**IC5301 LUMINANCE/CHROMINANCE PROCESS  
IC-DETAIL BLOCK DIAGRAM, AN5367FB**



## MAIN IV (POWER SUPPLY) SCHEMATIC DIAGRAM (H, I, J, K, L)

**NOTE:**  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PVC-1321	B
PVC-1331W	C
VV-1301	D
VV-1311W	E
PVC-1341	F
PVC-1351W	G
PVC-2011	H
PVC-2021	I
PVC-2031W	J
VV-2001	K
PVC-2061	L
Not Used	Z

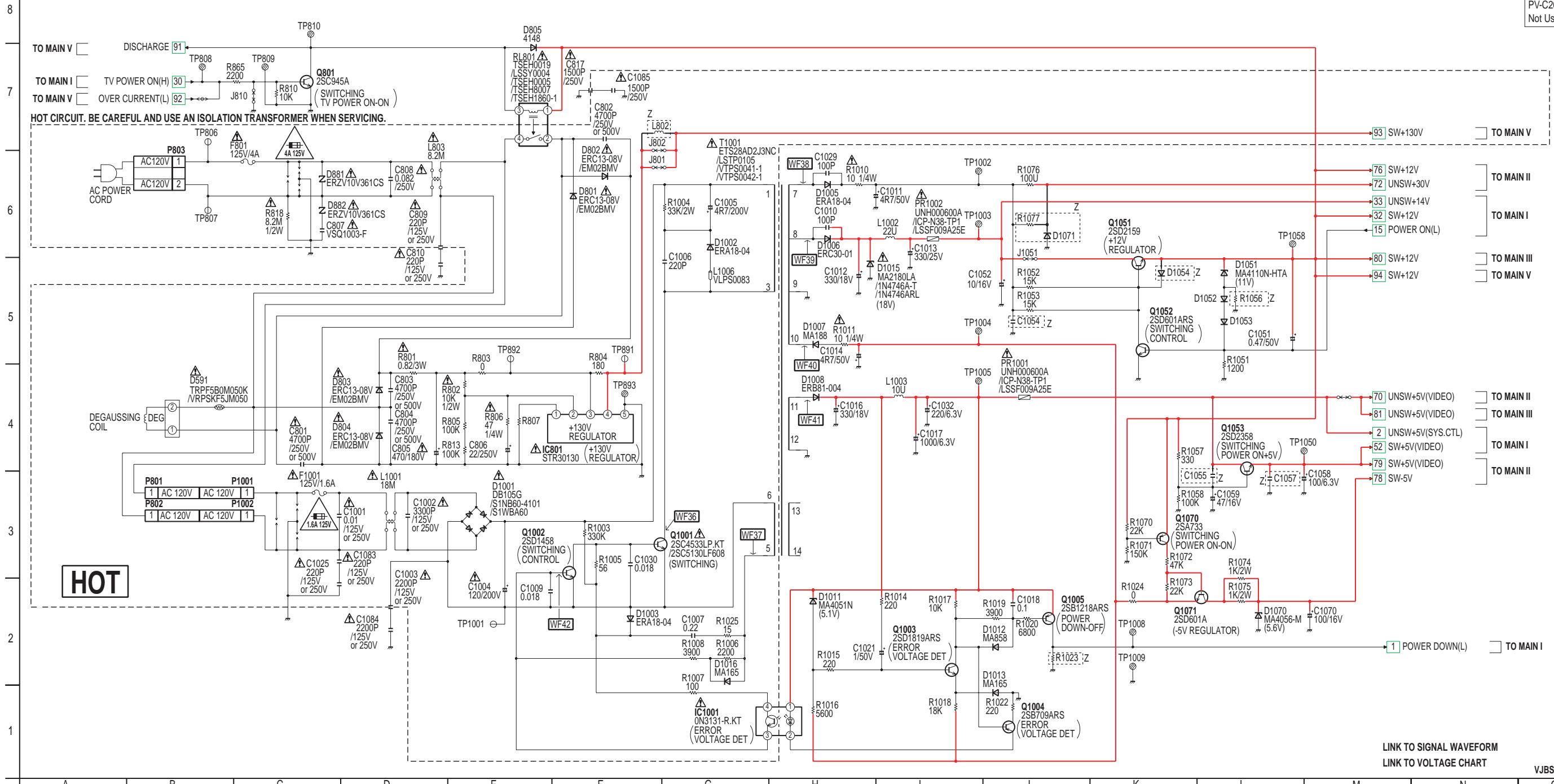
**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLES DE MÊME  
TYPE 4A 125V**

**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.**

**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N'I UTILISER QUE DES FUSIBLES DE MÊME  
TYPE 1.6A 125V**

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFE  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.



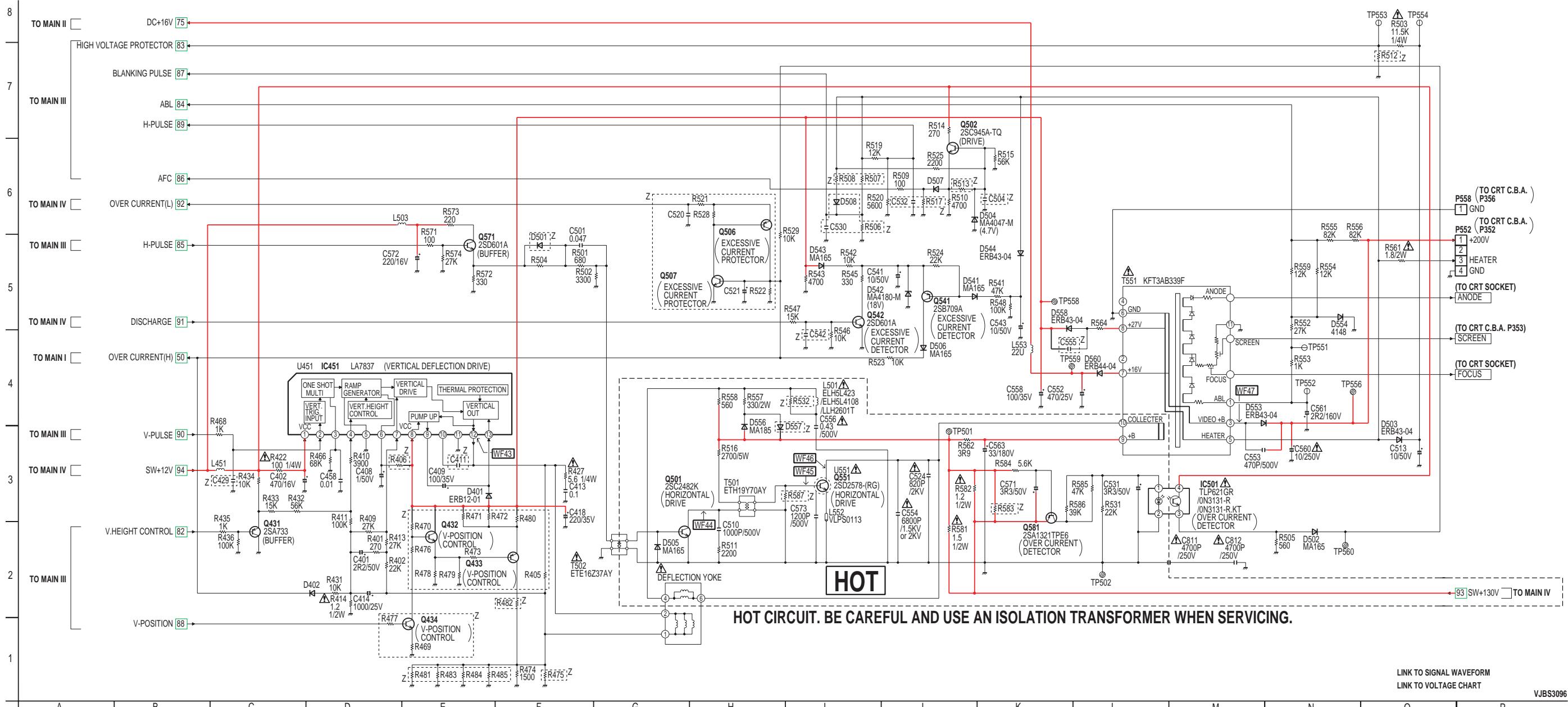
[LINK TO SIGNAL WAVEFORM](#)  
[LINK TO VOLTAGE CHART](#)

# MAIN V (TV) SCHEMATIC DIAGRAM (H, I, J, K, L)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.



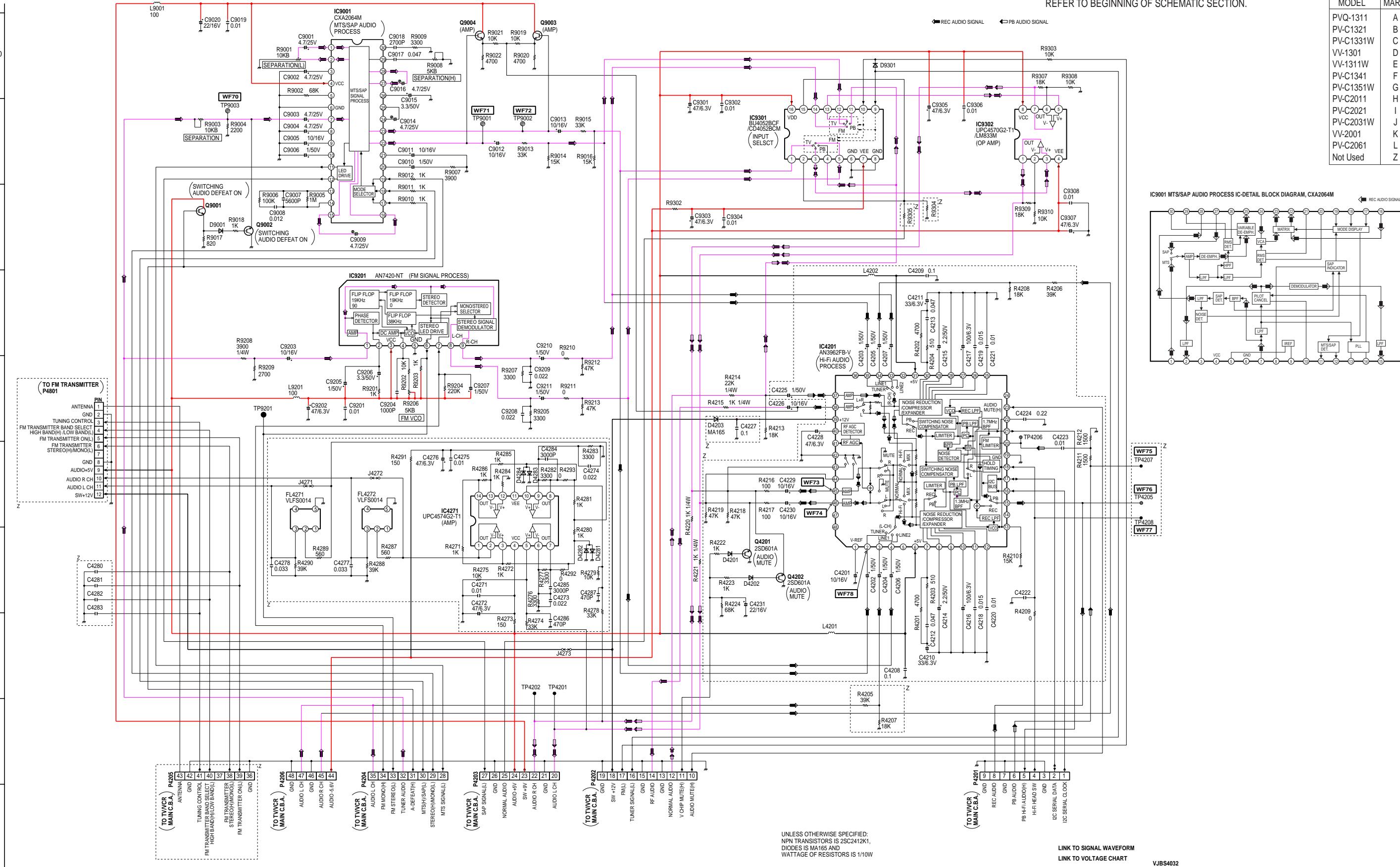
LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

VJBS3096

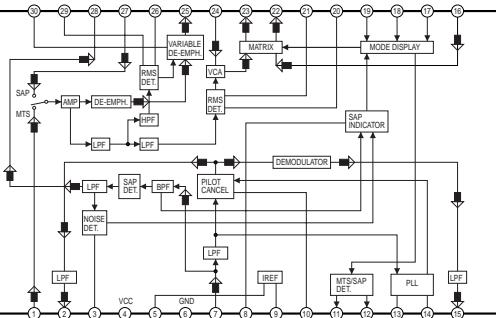
# AUDIO SCHEMATIC DIAGRAM (L)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PVC-1321	B
PVC-1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z



IC9001 MTS/SAP AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, CXA2064M



UNLESS OTHERWISE SPECIFIED:  
NPN TRANSISTORS IS 2SC2412K1,  
DIODES IS MA165 AND  
WATTAGE OF RESISTORS IS 1/10W

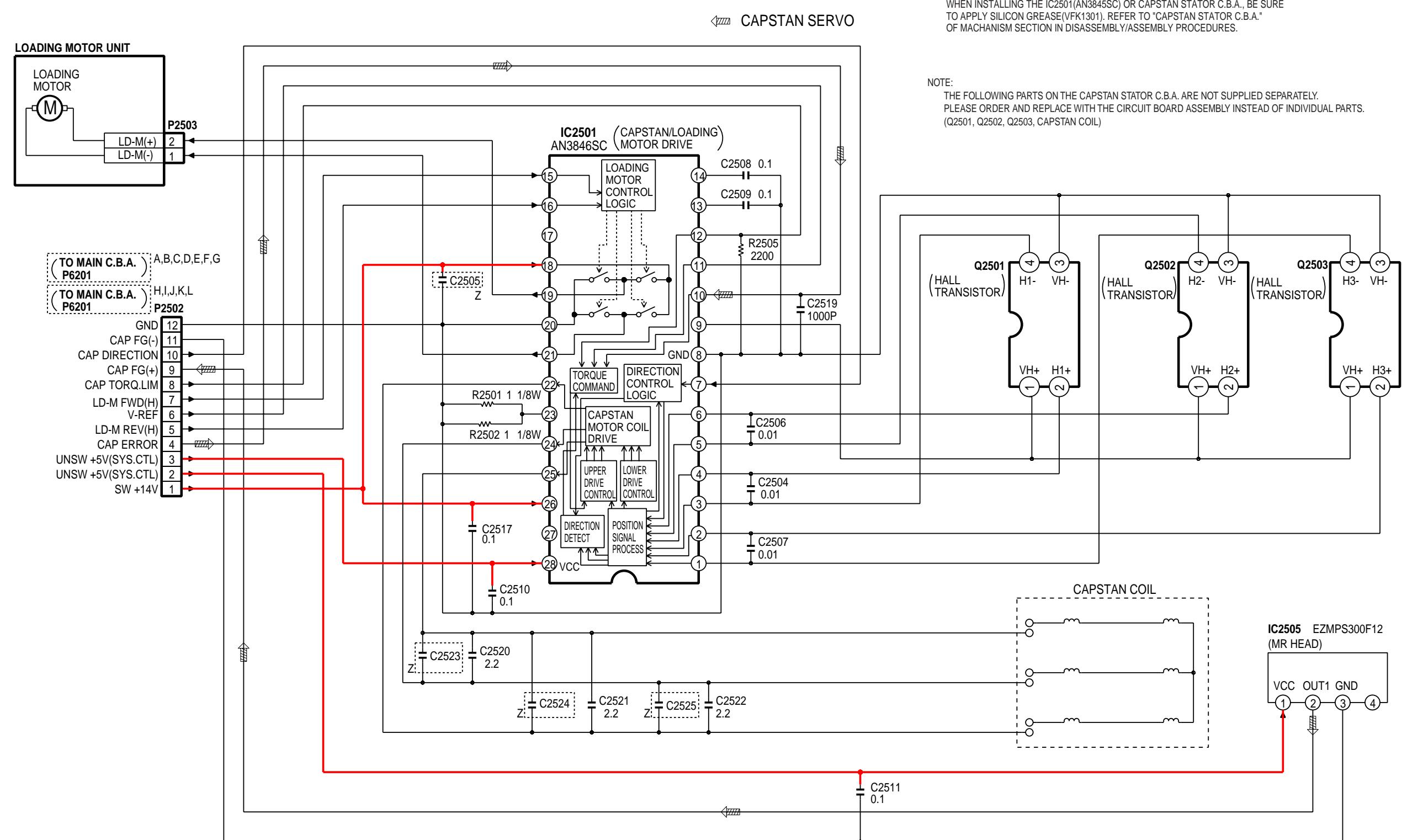
LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

VJBS4032

# CAPSTAN STATOR SCHEMATIC DIAGRAM

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z



LINK TO VOLTAGE CHART

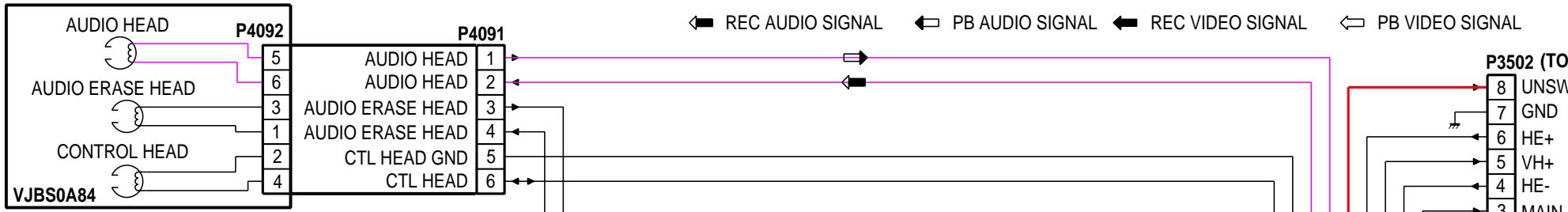
VJBS2007

# HEAD AMP SCHEMATIC DIAGRAM (A, B, C, D, E, H, I, J, K)

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

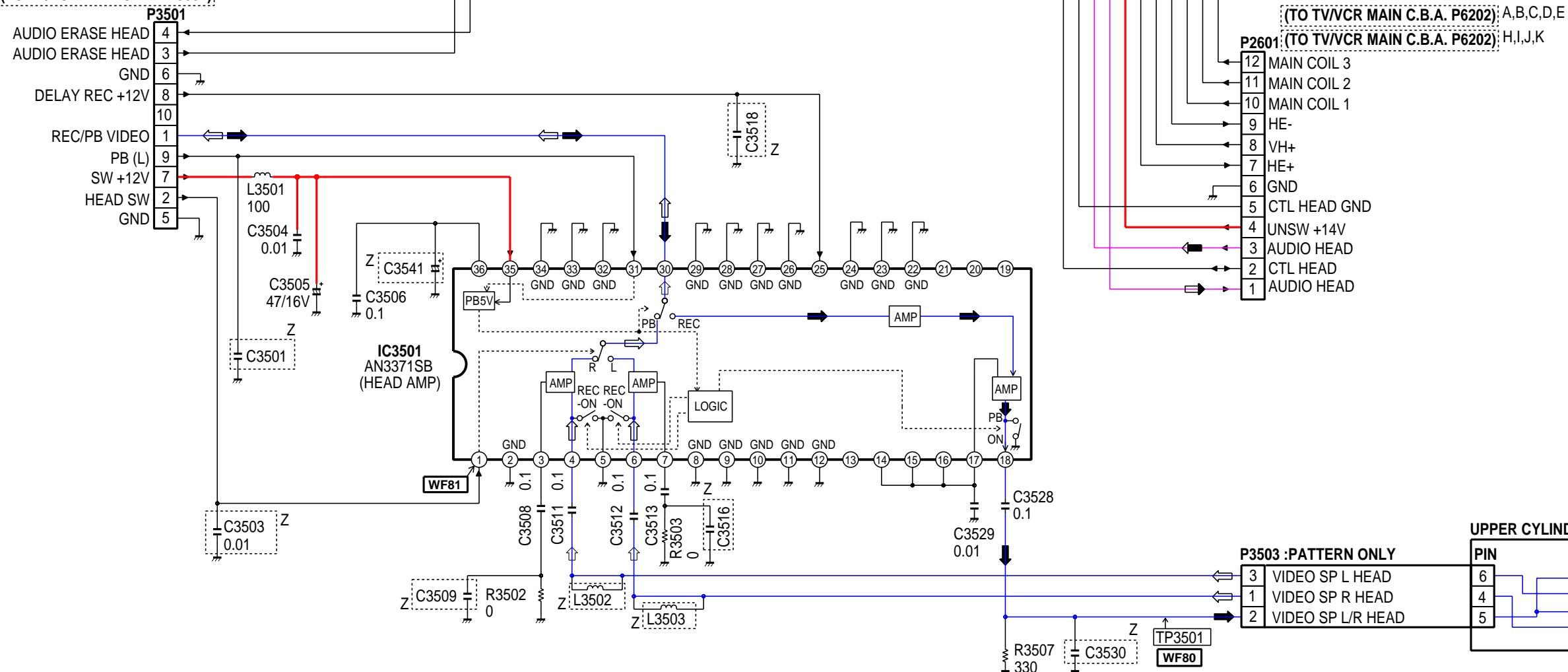
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

## AUDIO CONTROL HEAD P.C.B.



(TO TV/VCR MAIN C.B.A. P3001) A,B,C,D,E

(TO TV/VCR MAIN C.B.A. P3001) H,I,J,K



UNLESS OTHERWISE SPECIFIED;  
WATTAGE OF RESISTORS IS 1/10W.

LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

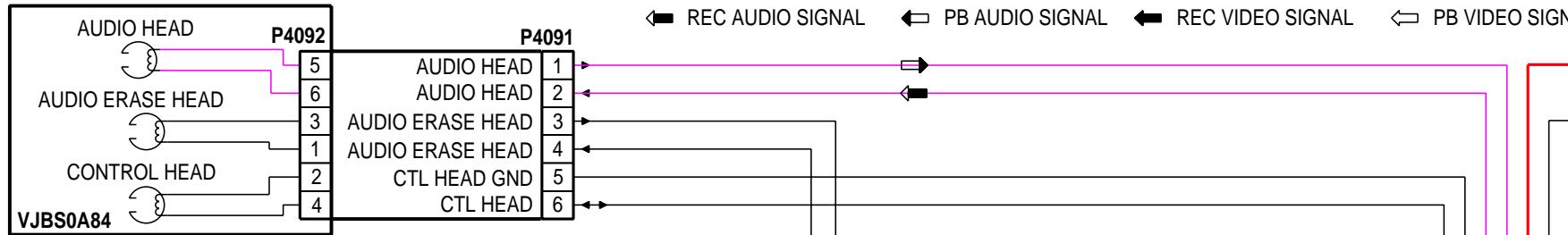
VJBS5043

# HEAD AMP SCHEMATIC DIAGRAM (F, G, L)

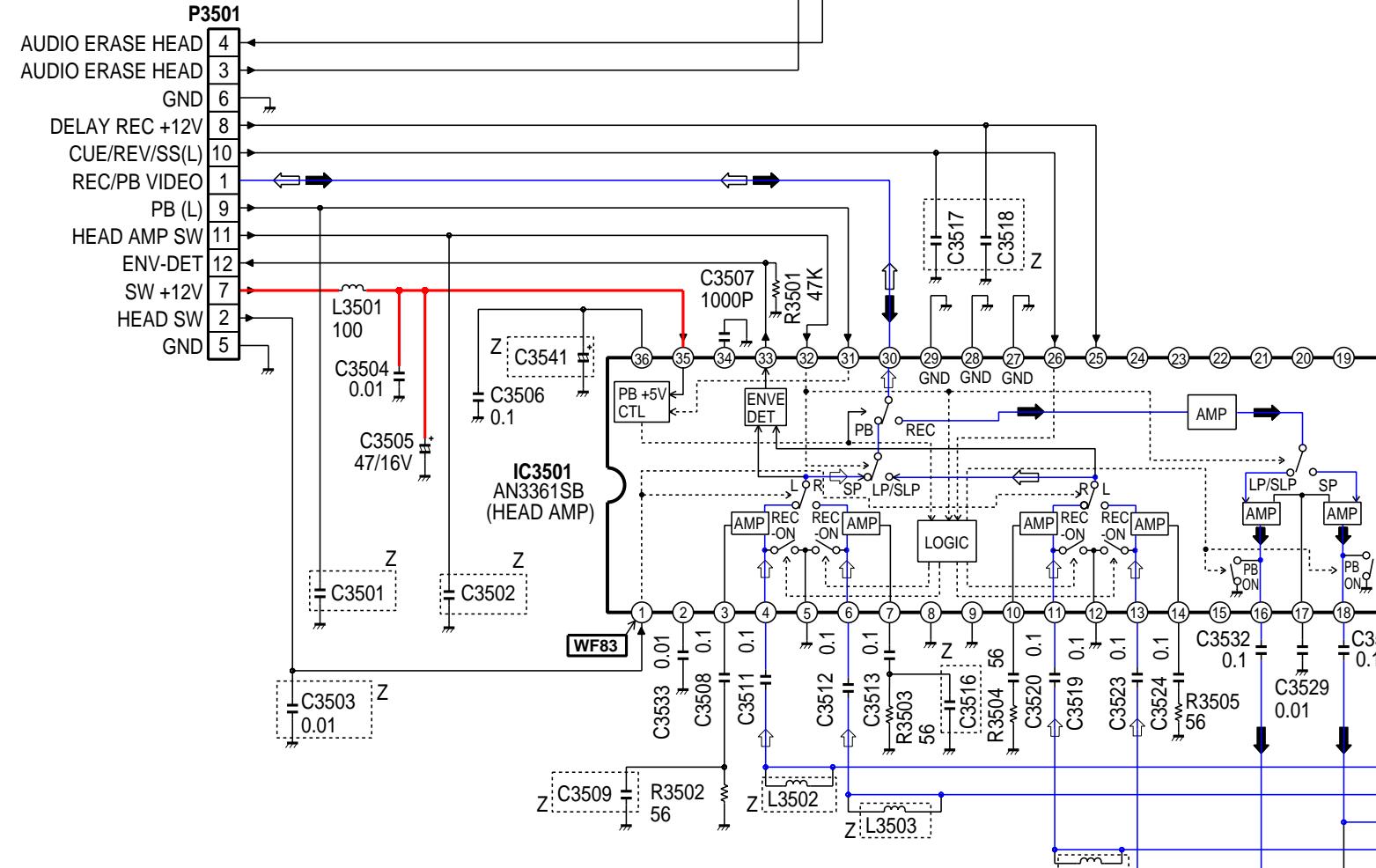
NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

## AUDIO CONTROL HEAD P.C.B.

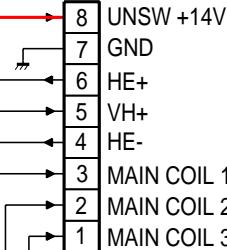


(TO TV/VCR MAIN C.B.A. P3001): F,G  
(TO TV/VCR MAIN C.B.A. P3001): L

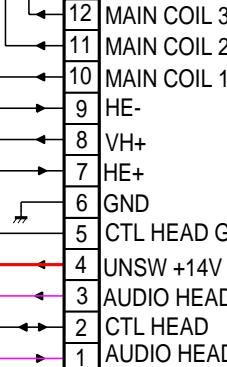


UNLESS OTHERWISE SPECIFIED;  
WATTAGE OF RESISTORS IS 1/10W.

## P3502 (TO CYLINDER UNIT) : PATTERN ONLY

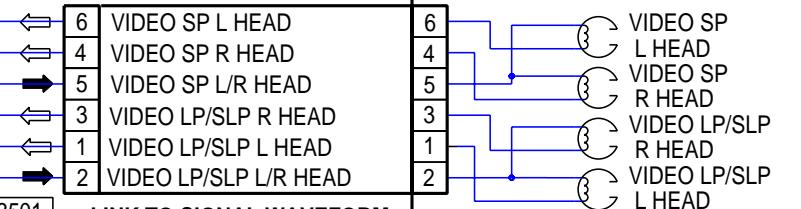


(TO TV/VCR MAIN C.B.A. P6202): F,G  
(TO TV/VCR MAIN C.B.A. P6202): L



## UPPER CYLINDER UNIT

### P3503 : PATTERN ONLY



LINK TO SIGNAL WAVEFORM  
LINK TO VOLTAGE CHART

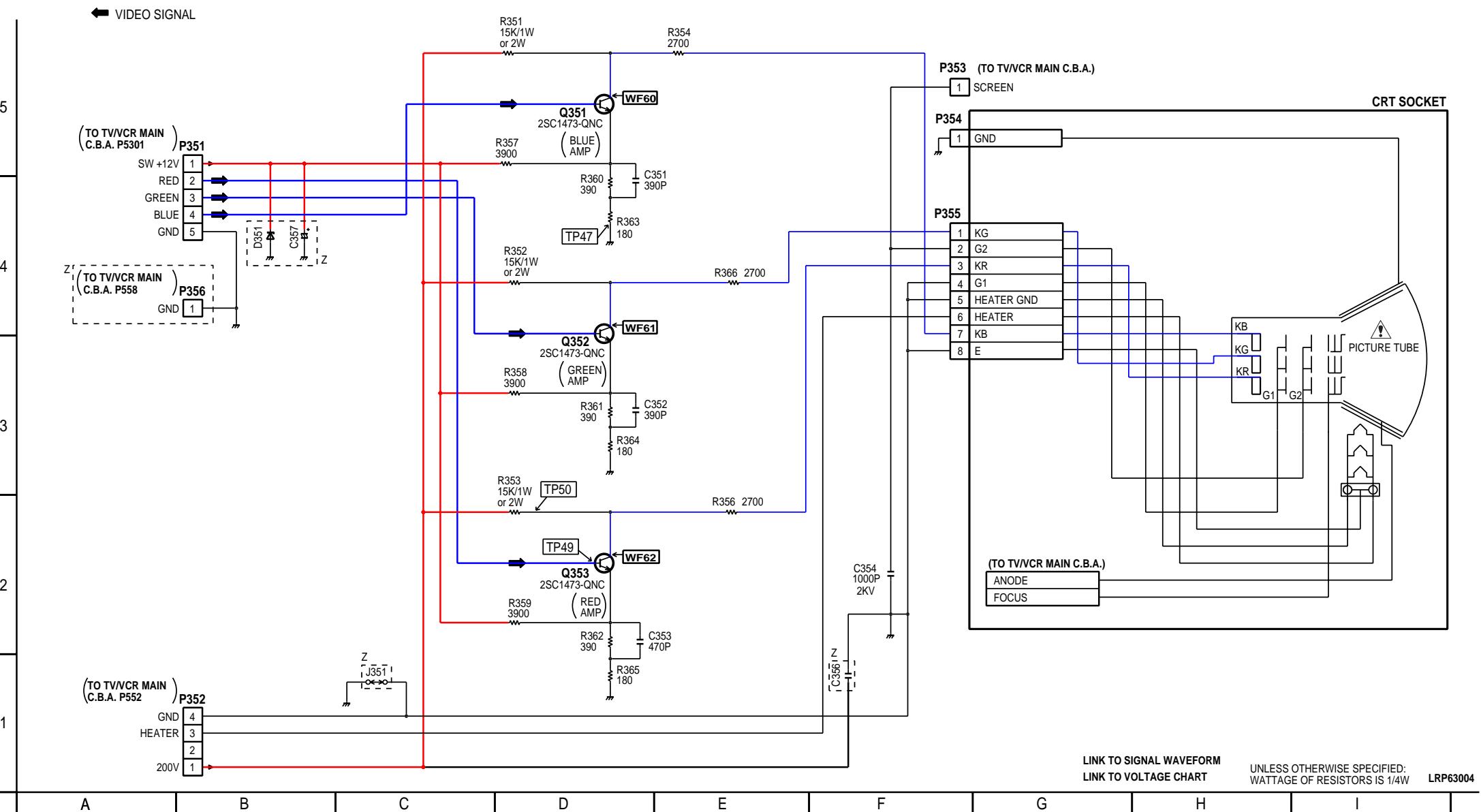
VJBS5042

# CRT SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z

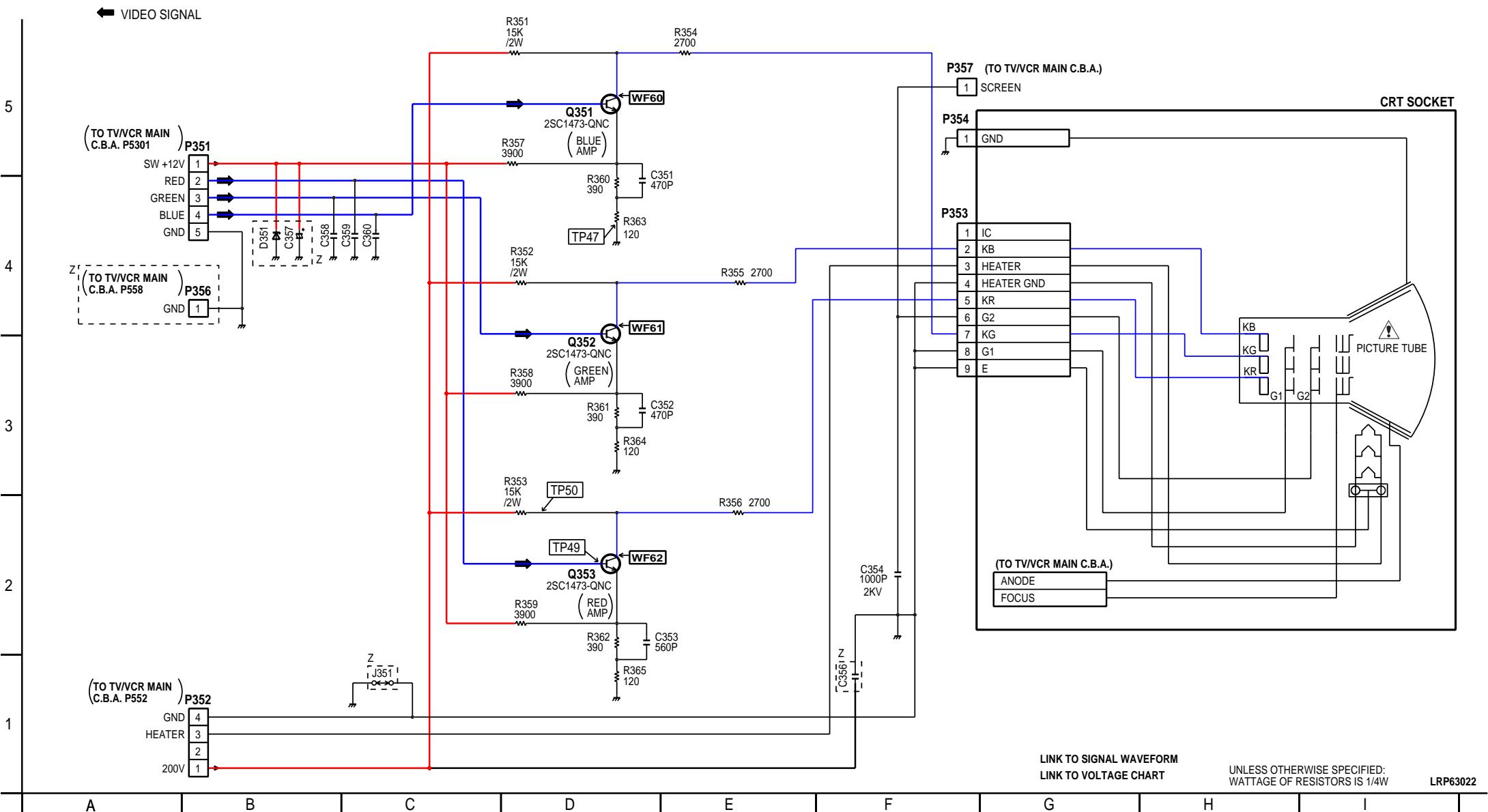


## CRT SCHEMATIC DIAGRAM (H, I, J, K, L)

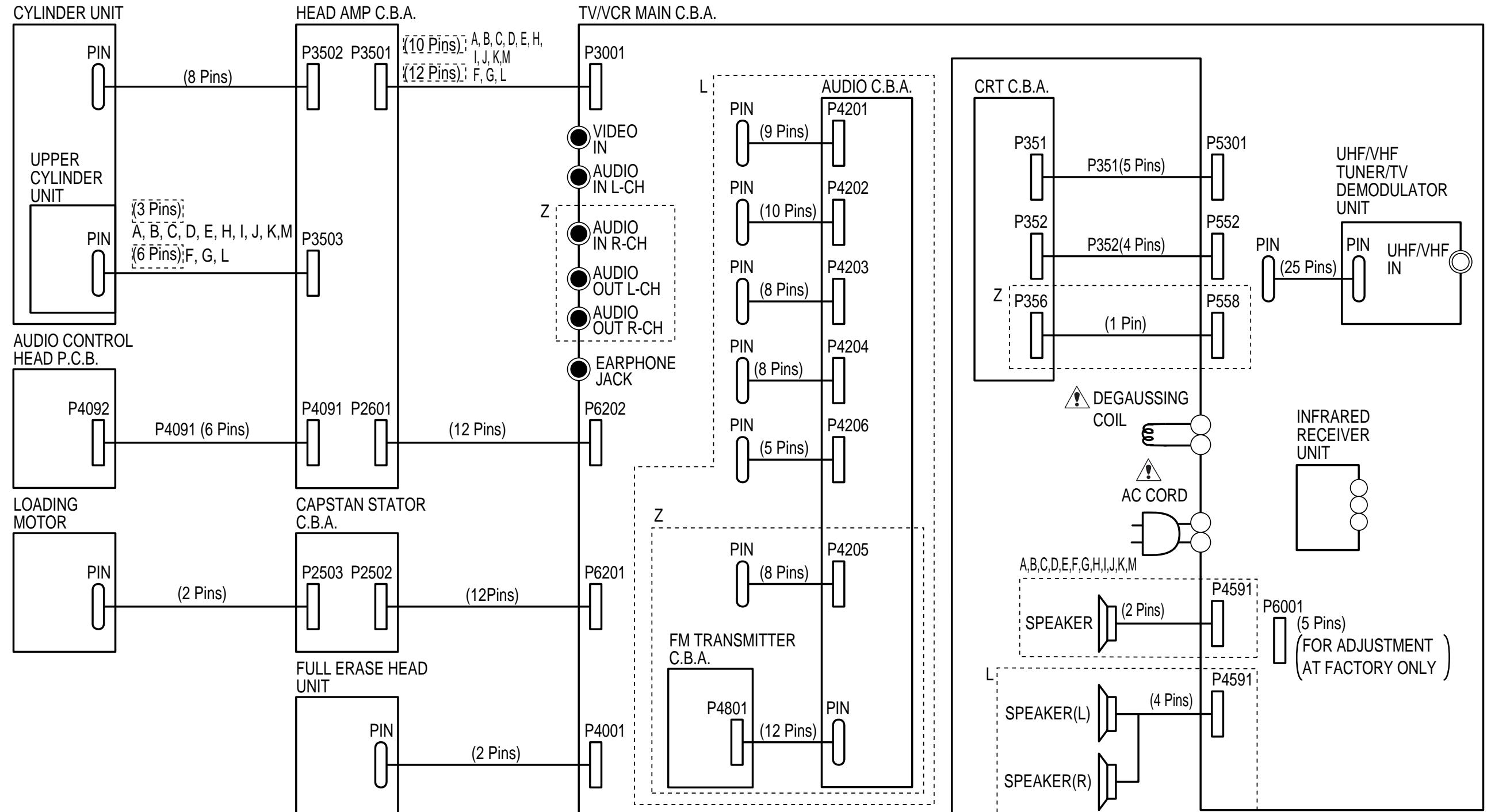
**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN  HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
Not Used	Z



# INTERCONNECTION SCHEMATIC DIAGRAM



IMPORTANT SAFETY NOTICE:  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS	
MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L
	Z
	Not Used

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

TV/VCR MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE PIN NO.	STOP
IC451	
1	11.4
2	4.0
3	5.7
4	5.8
5	0
6	5.4
7	5.8
8	23.8
9	2.5
10	1.6
11	0
12	16.2
13	24.9
IC501	
1	0
2	0
3	0
4	11.9
IC1001	
1	5.3
2	4.4
3	0.6
4	2.0
IC3001	
1	5.1
2	3.4
3	2.7
4	5.1
5	2.7
6	---
7	5.2
8	5.3
9	2.2
10	2.8
11	0.4
12	2.8
13	0
14	0.4
15	1.0
16	3.1
17	2.3
18	---
19	2.6
20	3.1
21	5.1
22	2.0
23	2.6
24	2.3
25	2.0
26	2.5
27	2.0
28	0
29	1.9
30	1.8

MODE PIN NO.	STOP
31	2.0
32	2.4
33	2.0
34	2.8
35	---
36	2.5
37	0.1
38	4.6
39	2.3
40	3.5
41	2.8
42	0
43	3.4
44	2.6
45	2.6
46	2.6
47	5.1
48	---
49	0.1
50	---
51	5.1
52	2.5
53	2.5
54	1.8
55	2.1
56	4.5
57	2.6
58	2.7
59	2.6
60	2.6
61	2.6
62	0
63	0
64	---
65	2.6
66	2.7
67	2.7
68	5.2
69	2.7
70	2.2
71	2.6
72	2.6
73	2.6
74	0
75	0
76	2.5
77	0
78	2.2
79	3.0
80	2.2
81	2.6
82	2.8
83	2.6
84	3.8

MODE PIN NO.	STOP
IC3201	
1	2.8
2	5.2
3	0
4	2.9
5	3.0
6	-3.3
7	2.2
8	3.3
IC4501	
1	---
2	0
3	6.4
4	0
5	1.9
6	5.9
7	5.9
8	0
9	6.0
10	14.1
IC4511	
1	---
2	0
3	6.3
4	0
44	5.3
45	0.4
46	2.7
47	5.2
Q431	
E	2.1
C	0
B	1.5
Q432	
E	0
C	24.6
B	0.1
Q501	
E	0
C	5.1
B	86.0
Q502	
E	0.4
C	0
B	0
Q503	
E	0.7
C	11.9
B	0.2
Q541	
E	18.2
C	-3.4
B	18.1
Q542	
E	0
C	18.2
B	0.1
Q551	
E	0.1
C	1.8
B	0
Q3001	
E	---
C	---
B	0
Q1071	
E	28.8
C	-28.6
B	-28.1
Q1070	
E	11.9
C	11.9
B	11.3
Q1053	
E	5.2
C	5.3
B	6.0
Q1052	
E	0
C	12.5
B	0.6
Q1051	
E	11.9
C	15.1
B	12.5
Q1050	
E	0.7
C	0
B	0
TP501	120.8
TP502	0
TP551	-19.0
TP552	-19.8
TP553	5.3
TP554	22.3
TP555	186.4
TP556	24.2
TP557	14.8
TP558	63.4
TP559	63.5
TP560	11.7
TP561	9.1
TP562	11.7
TP563	11.7
TP564	3.5
TP565	11.7
TP566	0
TP567	0
TP568	0
TP569	0
TP570	0
TP571	0
TP572	0
TP573	0
TP574	0
TP575	0
TP576	0
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TP763	0
TP764	0
TP765	0
TP766	0
TP767	0
TP768	0
TP769	0
TP770	0
TP771	0
TP772	0

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

#### TV/VCR MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE PIN NO.	REC	PLAY
IC2601		
1	14.1	14.2
2	14.1	14.2
3	14.7	14.7
4	1.2	1.2
5	5.3	5.3
6	1.0	1.0
7	1.1	1.1
8	0.6	0.6
9	2.7	2.8
10	1.5	1.5
11	0	0
12	3.9	3.9
13	4.0	4.0
14	4.0	4.0
15	0.1	0.1
16	14.1	14.2
IC6001		
1	5.3	5.3
2	5.2	5.2
3	---	---
4	---	---
5	4.6	5.0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	5.2	5.2
13	0	0
14	0	0
15	0	0
16	0	0
17	5.1	5.1
18	5.2	5.3
19	5.1	5.1
20	5.3	5.3
21	5.2	5.2
22	1.1	1.0
23	5.1	5.1
24	0	0
25	2.5	2.5
26	2.6	2.6
27	0	0
28	5.2	5.2
29	0	2.6
30	0	2.6
31	0	0.1
32	5.2	0
33	0.5	0.5
34	0	0
35	1.9	1.9
36	0	0
37	2.4	2.4

MODE PIN NO.	REC	PLAY
38	2.5	2.5
39	0.1	2.4
40	5.2	5.2
41	---	---
42	---	---
43	0	0.1
44	0.3	0.3
45	0	0.1
46	0	0
47	4.5	4.5
48	4.8	4.8
49	4.0	4.0
50	4.3	4.2
51	0	0
52	2.0	0
53	0	0.1
54	2.0	0
55	0	2.7
56	-0.2	0.2
57	5.0	0
58	5.1	0
59	2.5	0
60	2.5	0.1
61	0	2.3
62	0.1	0.1
63	0	0
64	0	0
65	4.9	0
66	2.3	0
67	5.2	0
68	0.1	0
69	0	0
70	0	0
71	0.1	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	2.6	2.6
79	2.6	0.1
80	0	0
81	2.6	0
82	5.2	5.2
83	3.0	---
84	2.2	2.6
85	2.6	2.6
86	0.4	0.3
87	5.2	5.2
88	2.5	2.5
89	0	0
90	5.2	5.2
91	5.2	5.2
92	2.9	3.0

#### CAPSTAN STATOR C.B.A.

MODE PIN NO.	REC	PLAY
Q6003		
E	0	0
C	0.1	0.1
B	0.8	0.8
Q6004		
E	5.2	5.2
C	5.2	5.2
B	4.5	4.5
Q6005		
E	5.3	5.3
C	5.2	5.2
B	4.4	4.4
Q6006		
E	0	0
C	5.2	5.2
B	0	0
Q6009		
E	0	0
C	5.2	5.2
Q6010		
E	0	0
C	5.1	5.2
IC6002		
1	1.2	1.2
2	0	0
3	0	0
4	---	---
IC6003		
1	2.4	2.4
2	1.2	1.2
3	0	0
4	---	---
IC6004		
1	0	0
2	0	0
3	0	0
4	---	---
IC6005		
1	5.3	5.3
2	5.3	0
3	0	0
4	0	0
5	5.3	5.3
6	5.2	5.2
7	0	0
8	5.3	5.3
IC6005		
1	5.3	5.3
2	5.3	0
3	0	0
4	0	0
5	0.1	0
6	0	0
Q6001		
E	11.1	---
C	11.8	0.3
B	11.9	11.9
Q6002		
E	4.5	0
C	11.1	---
B	5.2	0
TP6001		
TP6002		
TP6003		
TP6004		
TP6005		
TP6006		
TP6007		
TP6008		
TP6009		
TP6010		
TP6011		
TP6012		
TP6013		
TP6014		
TP6015		
TP6016		
TP6017		
TP6018		
TP6019		
TP6020		
TP6021		
TP6022		
TP6023		
TP6024		
TP6025		
TP6026		
TP6027		
TP6028		
TP6029		
TP6030		
TP6031		
TP6032		
TP6033		
TP6034		
TP6035		
TP6036		
TP6037		
TP6038		
TP6039		
TP6040		

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

**HEAD AMP  
C.B.A.  
(A,B,C,D,E,H,I,J,K)**

MODE PIN NO.	STOP
IC3501	
1	0
2	0
3	0.5
4	0
5	0
6	0
7	0.5
8	0
9	0
10	0
11	0
12	0
13	---
14	2.4
15	2.4
16	2.4
17	2.4
18	0
19	---
20	---
21	---
22	0
23	0
24	0
25	0.2
26	0
27	0
28	0
29	0
30	2.5
31	5.2
32	0
33	0
34	0
35	11.9
36	0.1
TP3501	0

**HEAD AMP  
C.B.A.  
(F,G,L)**

MODE PIN NO.	STOP
IC3501	
1	0
2	0
3	0.5
4	0
5	0
6	0
7	0.5
8	0
9	0
10	0.5
11	0
12	0
13	0.1
14	0.1
15	---
16	2.4
17	2.4
18	0
19	---
20	---
21	---
22	0
23	0
24	---
25	0.2
26	5.1
27	0
28	0
29	0
30	2.5
31	5.2
32	4.9
33	0.2
34	0.1
35	11.9
36	0.1
TP3501	0

**AUDIO C.B.A.(L)**

MODE PIN NO.	STOP
IC9001	
1	4.2
2	4.1
3	3.5
4	9.0
5	1.3
6	0
7	0
8	4.6
9	1.3
10	4.9
11	0.1
12	5.2
13	4.2
14	4.2
15	4.1
16	4.2
17	0
18	0.2
19	0
20	4.1
21	1.9
22	4.2
23	4.2
24	4.2
25	4.2
26	1.9
27	4.2
28	4.1
29	4.2
30	4.1
IC9201	
1	3.1
2	3.8
3	5.2
4	4.4
5	0
6	5.2
7	4.5
8	2.8
9	2.8
IC9301	
1	0
2	0.2
3	0
4	0
5	0
6	0.1
7	-5.7
8	0
9	0
10	0
11	0
12	0
13	0

**CRT C.B.A.  
(A,B,C,D,E,F,G)**

MODE PIN NO.	STOP
IC9302	
14	0
15	0.1
16	5.2
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
Q351	
E	3.1
C	131.1
B	3.5
Q352	
E	3.1
C	127.9
B	3.5
Q353	
E	3.0
C	131.9
B	3.5
Q9001	
TP47	0
E	0
C	5.2
B	0
Q9002	
E	0.2
C	0
B	0
Q9003	
E	4.2
C	9.0
B	3.6
Q9004	
E	4.2
C	9.0
B	3.6
TP9001	4.2
TP9002	4.2
TP9003	0
TP9201	5.2

**CRT C.B.A.  
(H,I,J,K,L)**

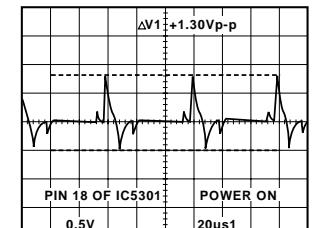
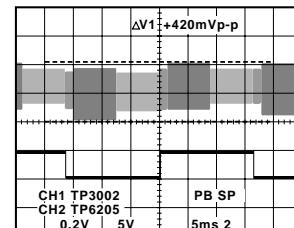
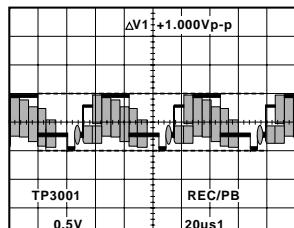
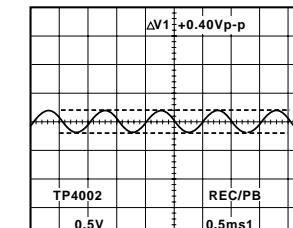
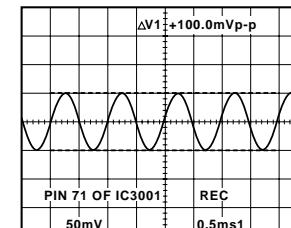
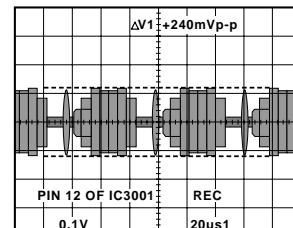
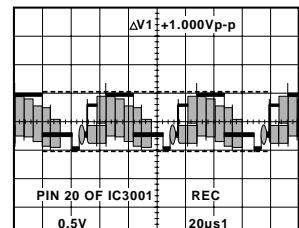
MODE PIN NO.	STOP
Q351	
E	3.1
C	131.1
B	3.5
Q352	
E	3.1
C	127.9
B	3.5
Q353	
E	3.0
C	131.9
B	3.5
TP47	0
TP49	3.5
TP50	131.9
TP50	131.9

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

## TV/VCR MAIN C.B.A.



COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

WF1

WF6

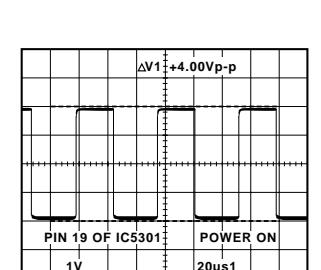
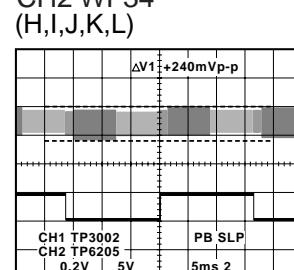
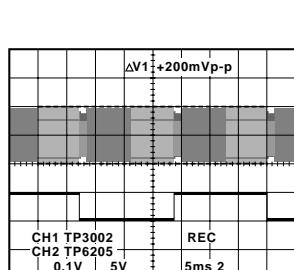
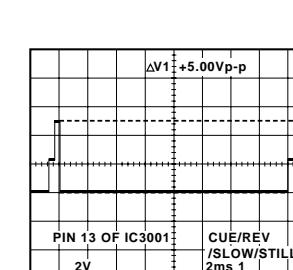
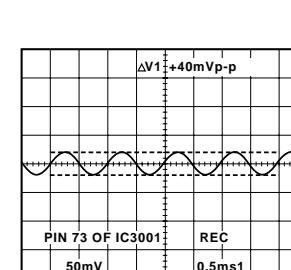
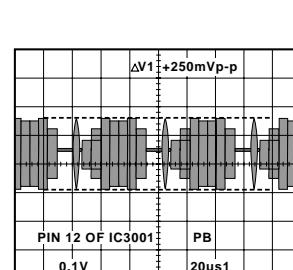
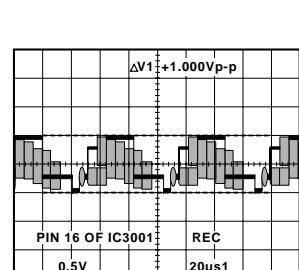
WF9

WF14

WF18

CH1 WF19  
CH2 WF34  
(H,I,J,K,L)

WF23



WF2

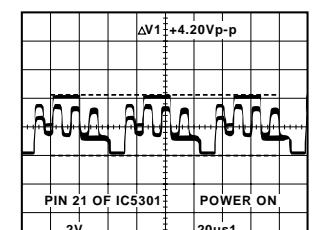
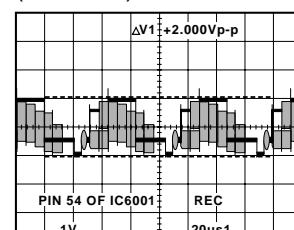
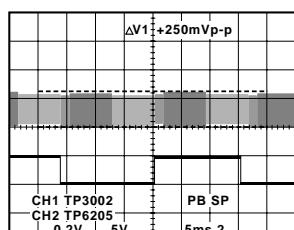
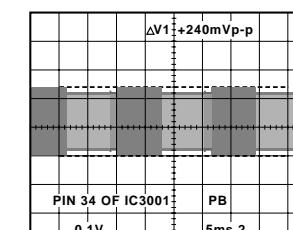
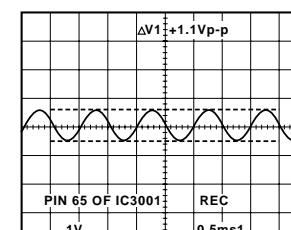
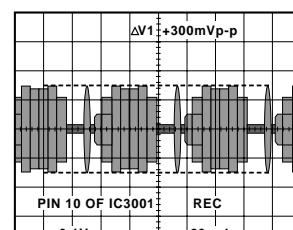
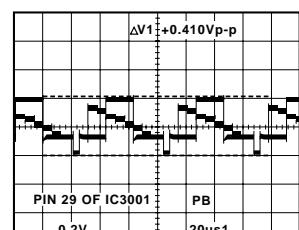
WF6

WF10

WF15

CH1 WF19  
CH2 WF34  
(A,B,C,D,E,F,G)

WF24



WF3

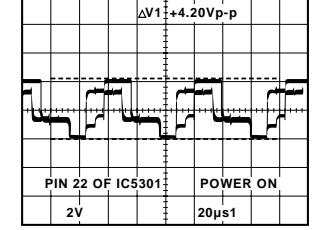
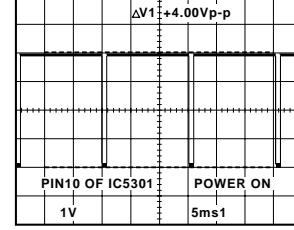
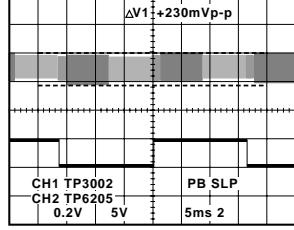
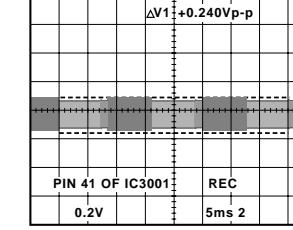
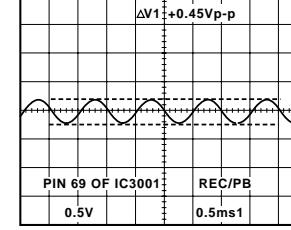
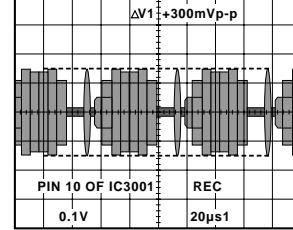
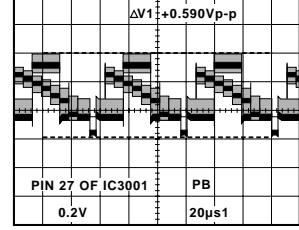
WF7

WF11

WF16

CH1 WF19  
CH2 WF34  
(A,B,C,D,E,F,G)

WF20



WF4

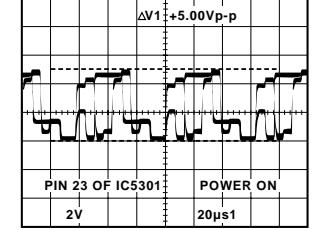
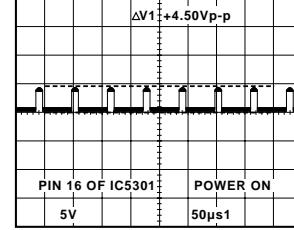
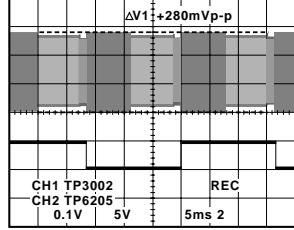
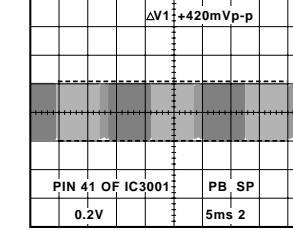
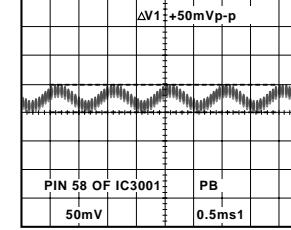
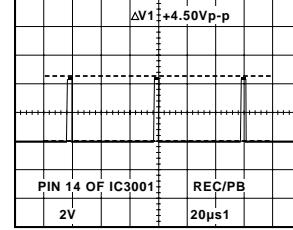
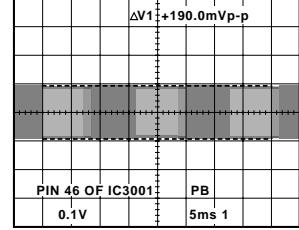
WF7

WF12

WF17

CH1 WF19  
CH2 WF34  
(A,B,C,D,E,F,G)

WF21



WF5

WF8

WF13

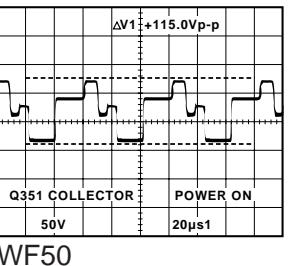
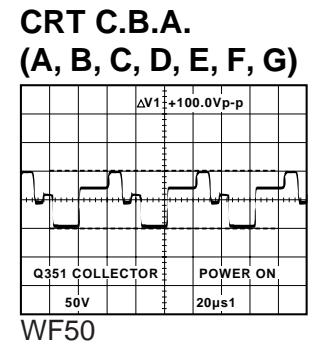
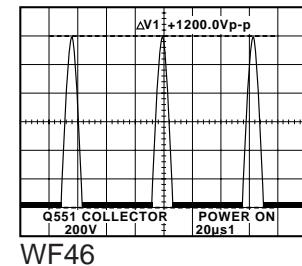
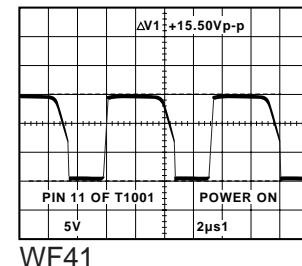
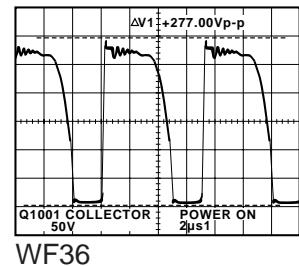
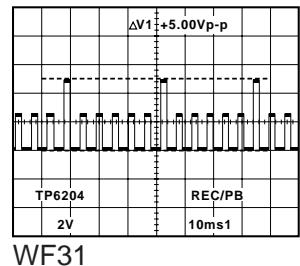
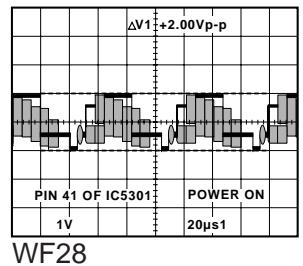
WF17

CH1 WF19  
CH2 WF34  
(H,I,J,K,L)

WF22

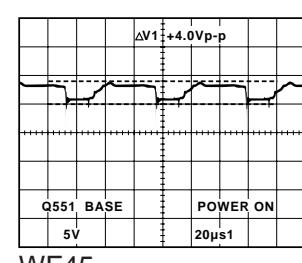
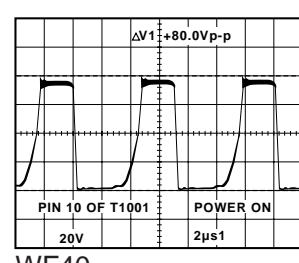
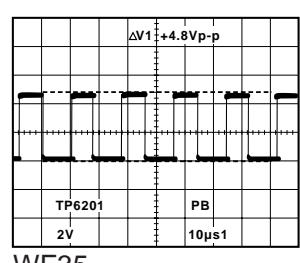
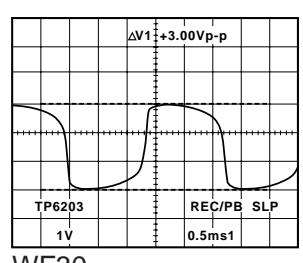
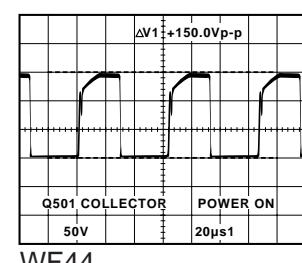
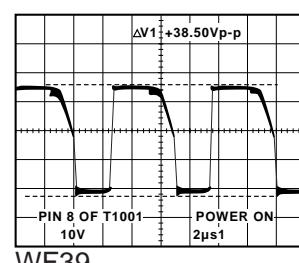
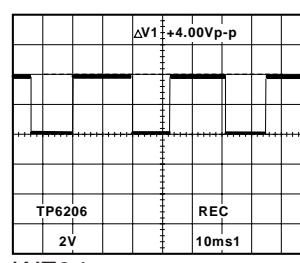
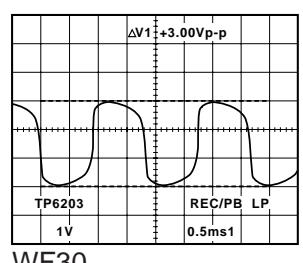
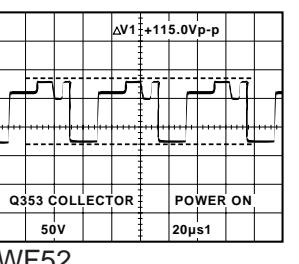
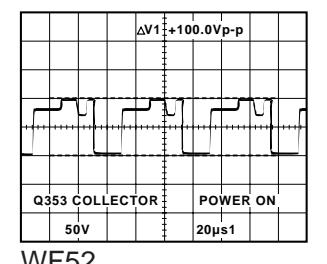
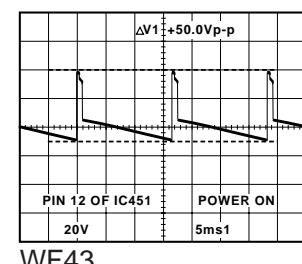
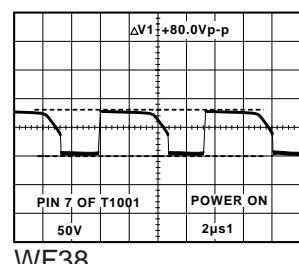
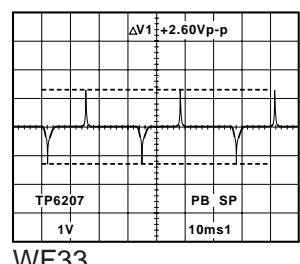
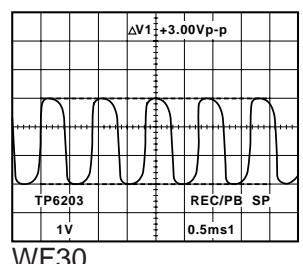
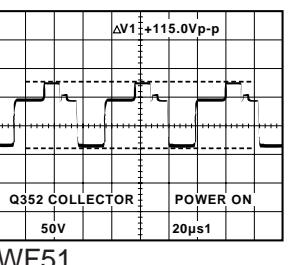
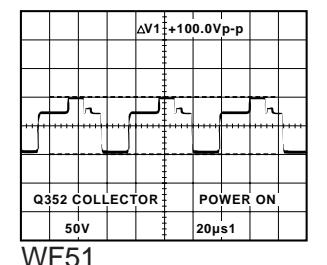
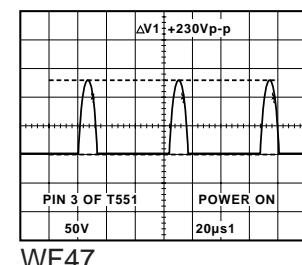
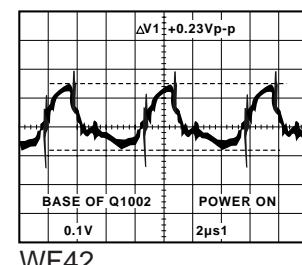
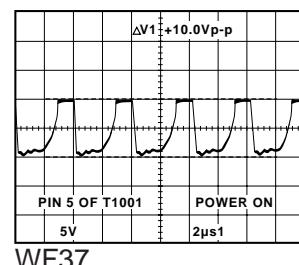
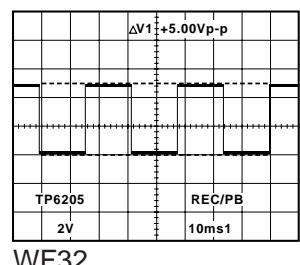
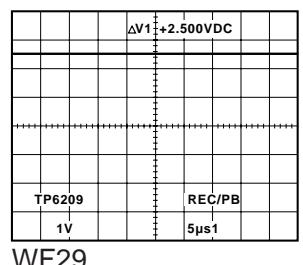
WF27

NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.



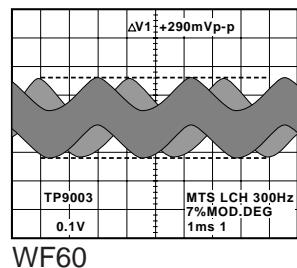
COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

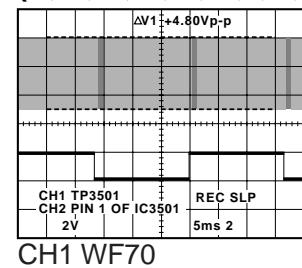


NOTE:  
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

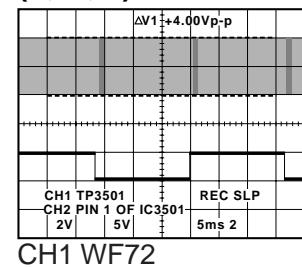
### AUDIO C.B.A. (L)



### HEAD AMP C.B.A. (A, B, C, D, E, H, I, J, K)

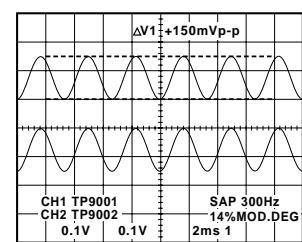


### HEAD AMP C.B.A. (F, G, L)

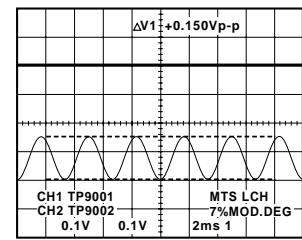


COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L

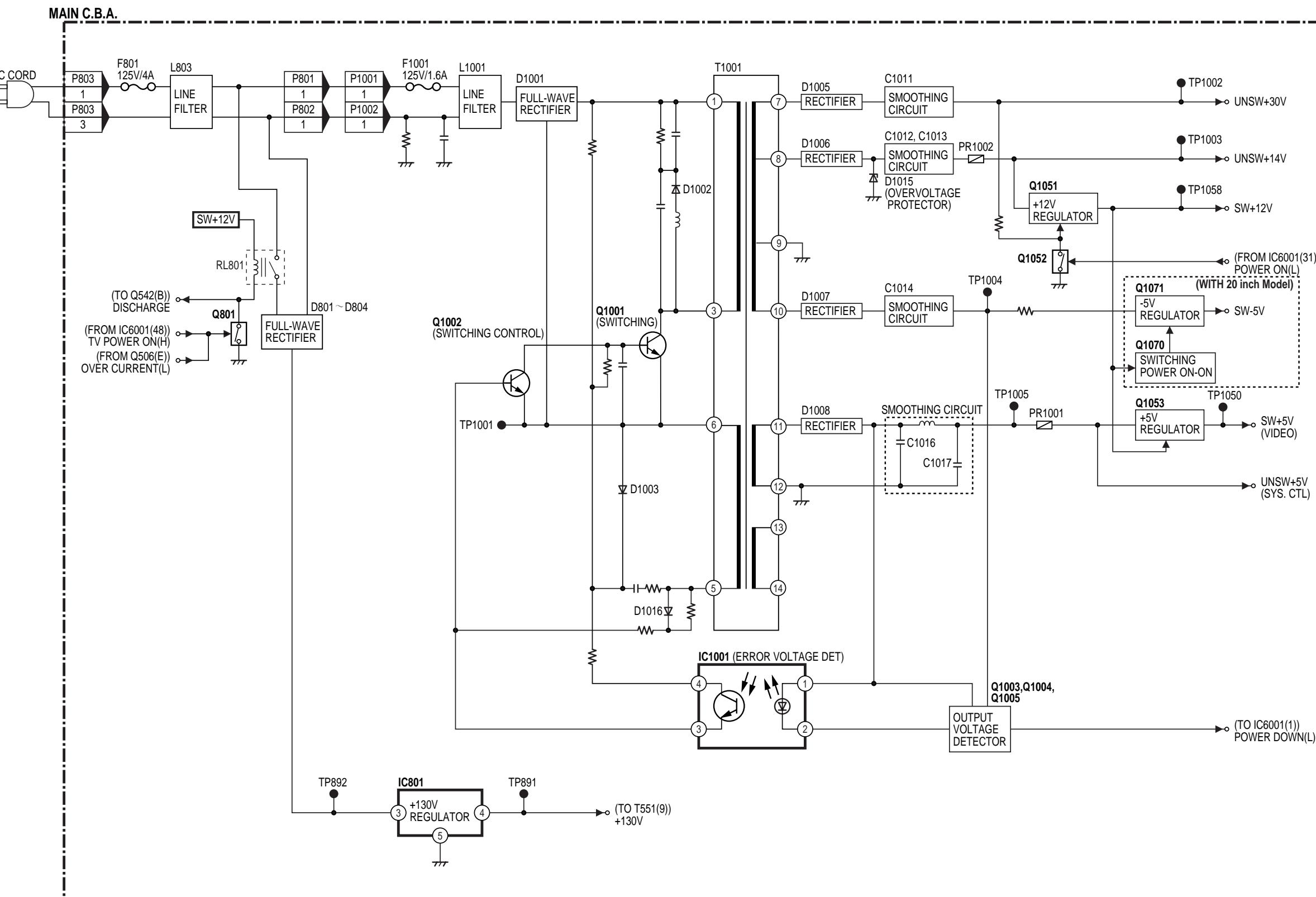


CH1 WF62  
CH2 WF62

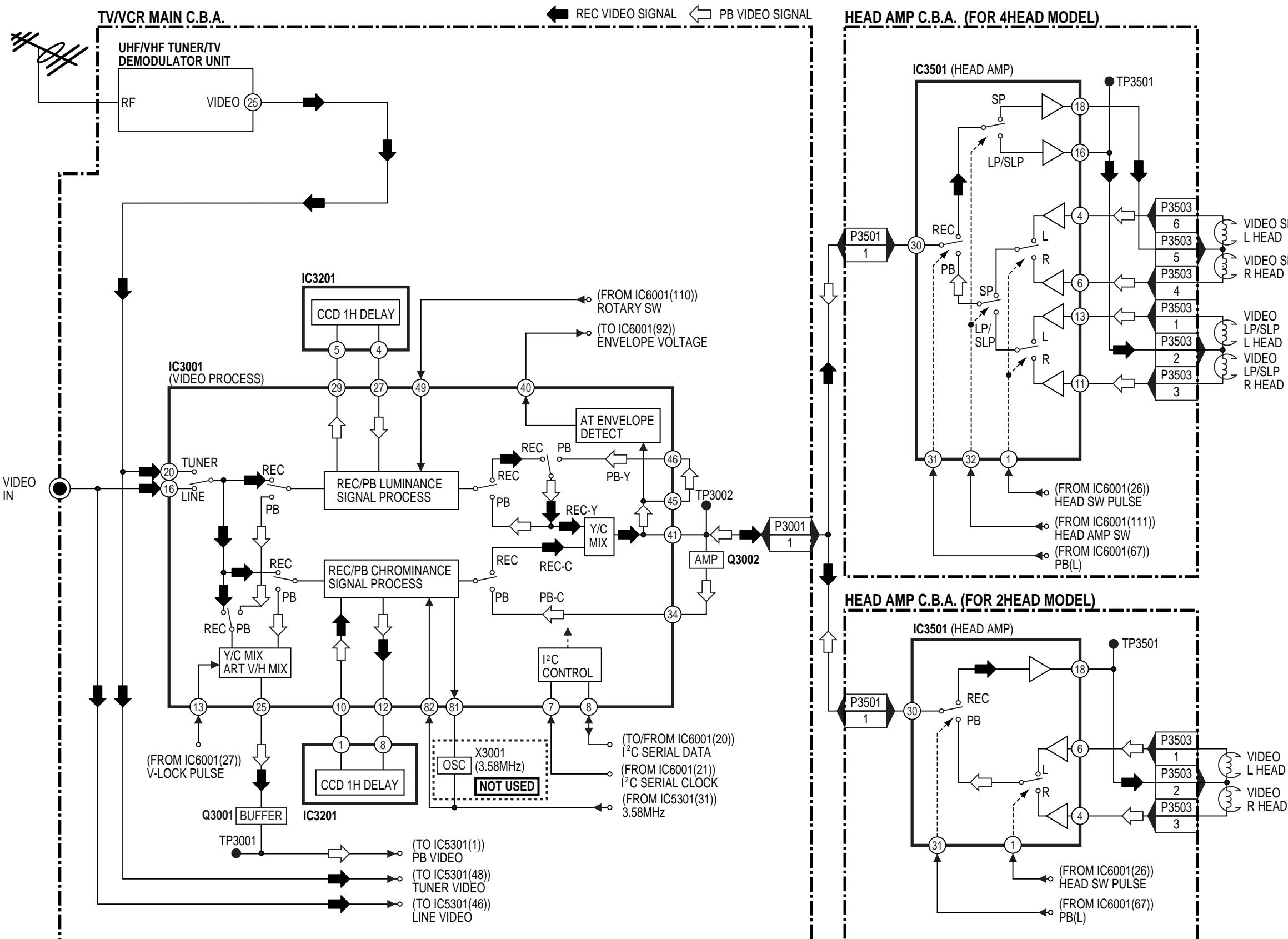


CH1 WF62  
CH2 WF62

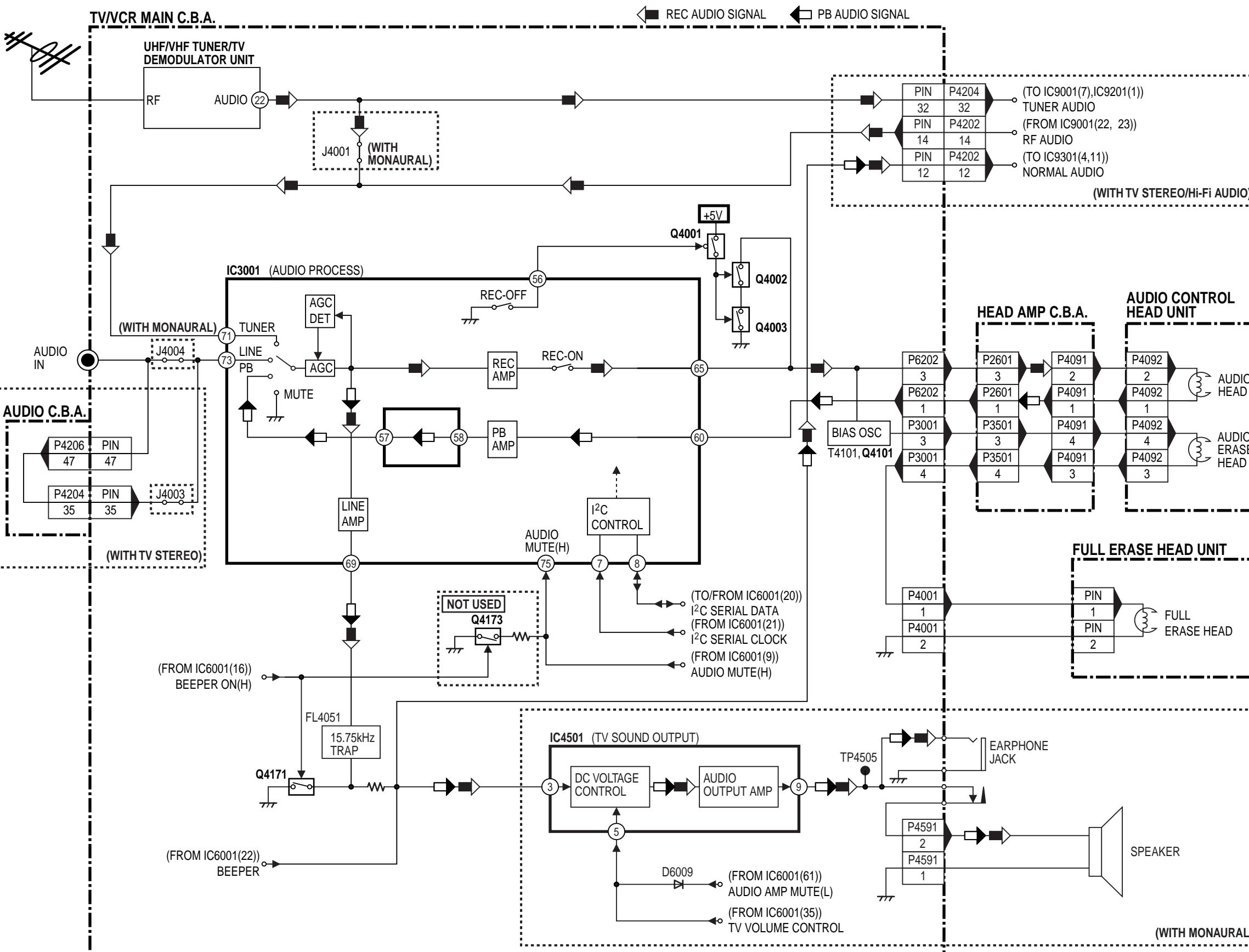
# POWER SUPPLY BLOCK DIAGRAM



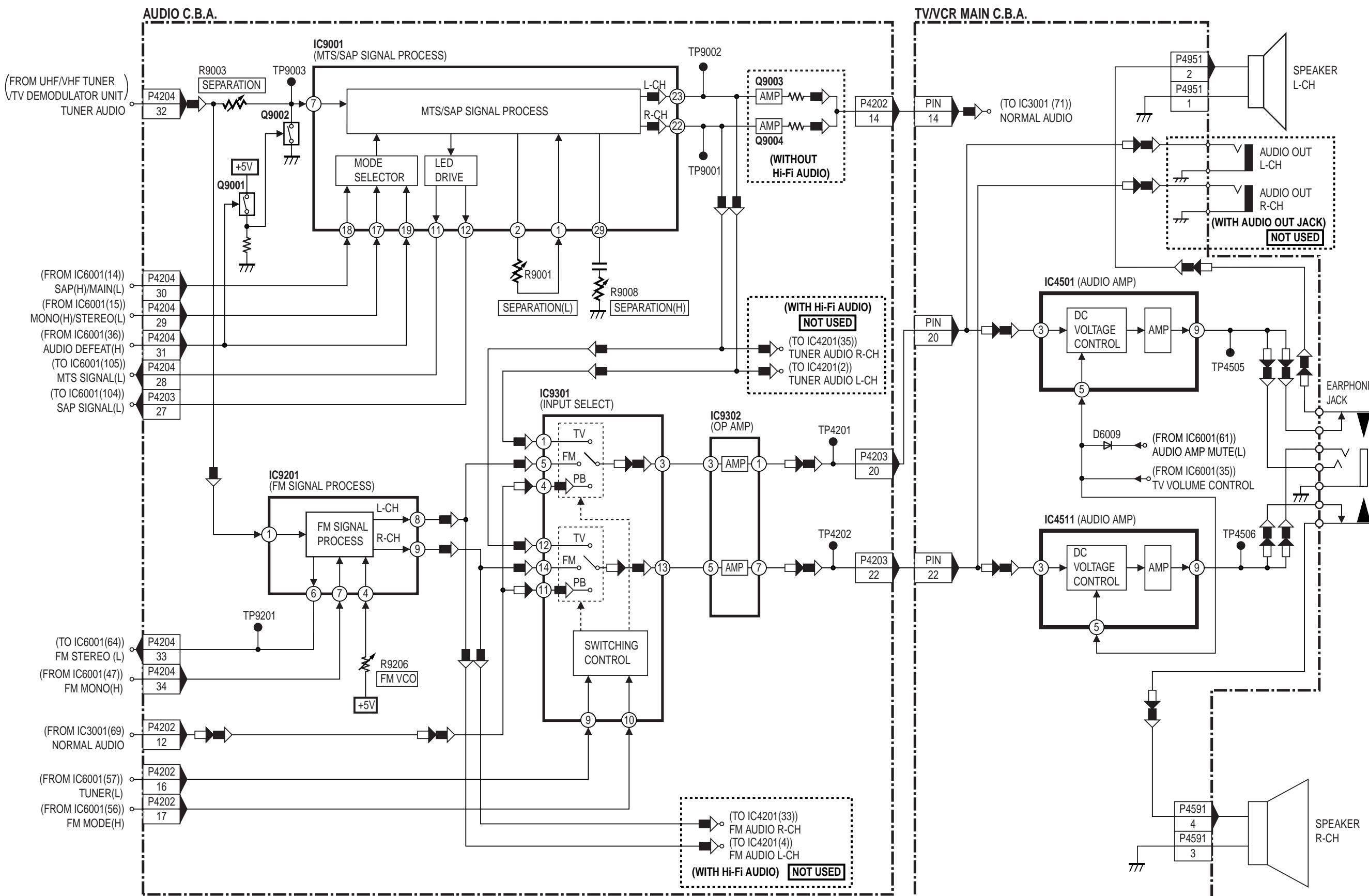
# VIDEO SIGNAL PATH BLOCK DIAGRAM



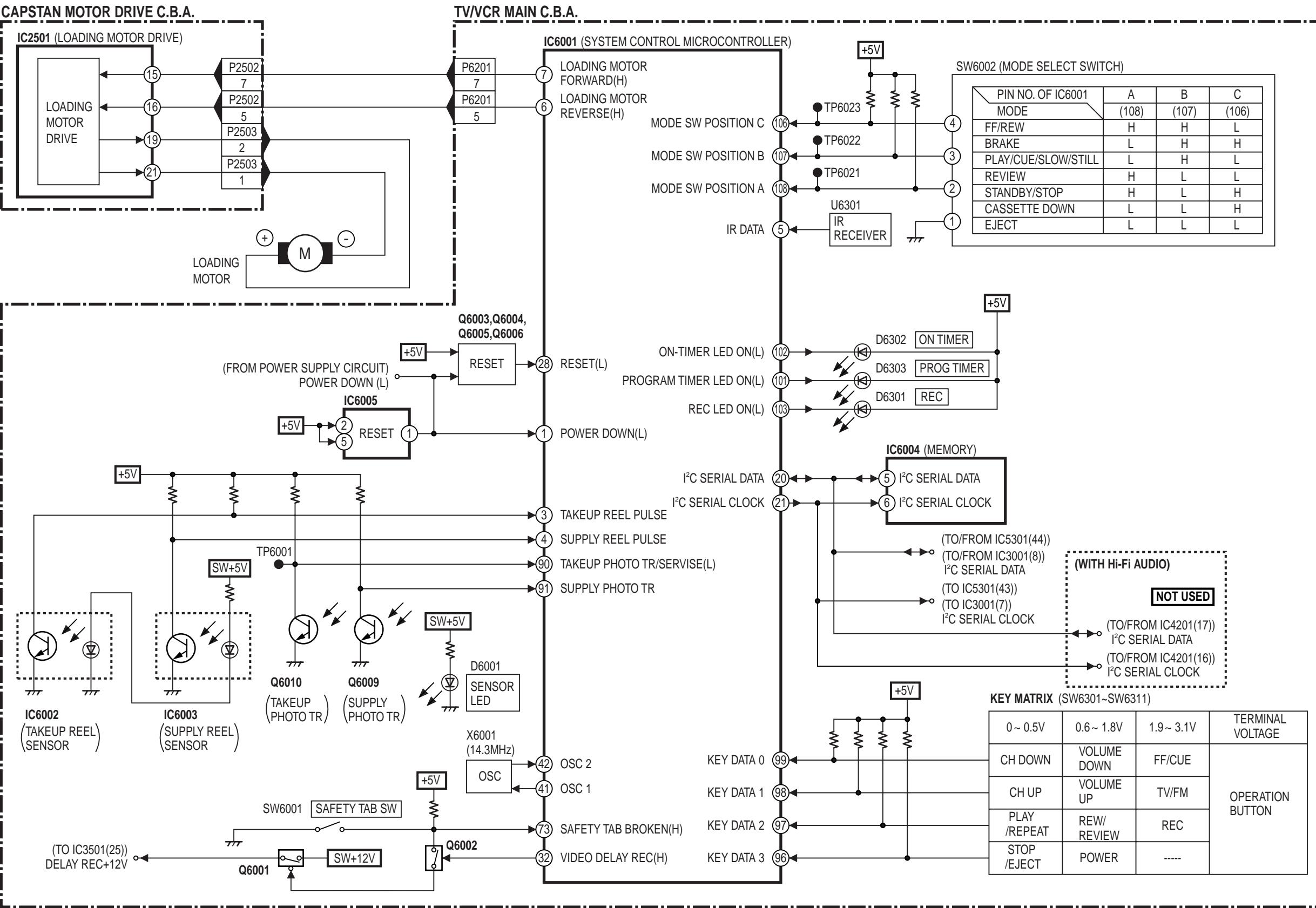
## AUDIO SIGNAL PATH BLOCK DIAGRAM



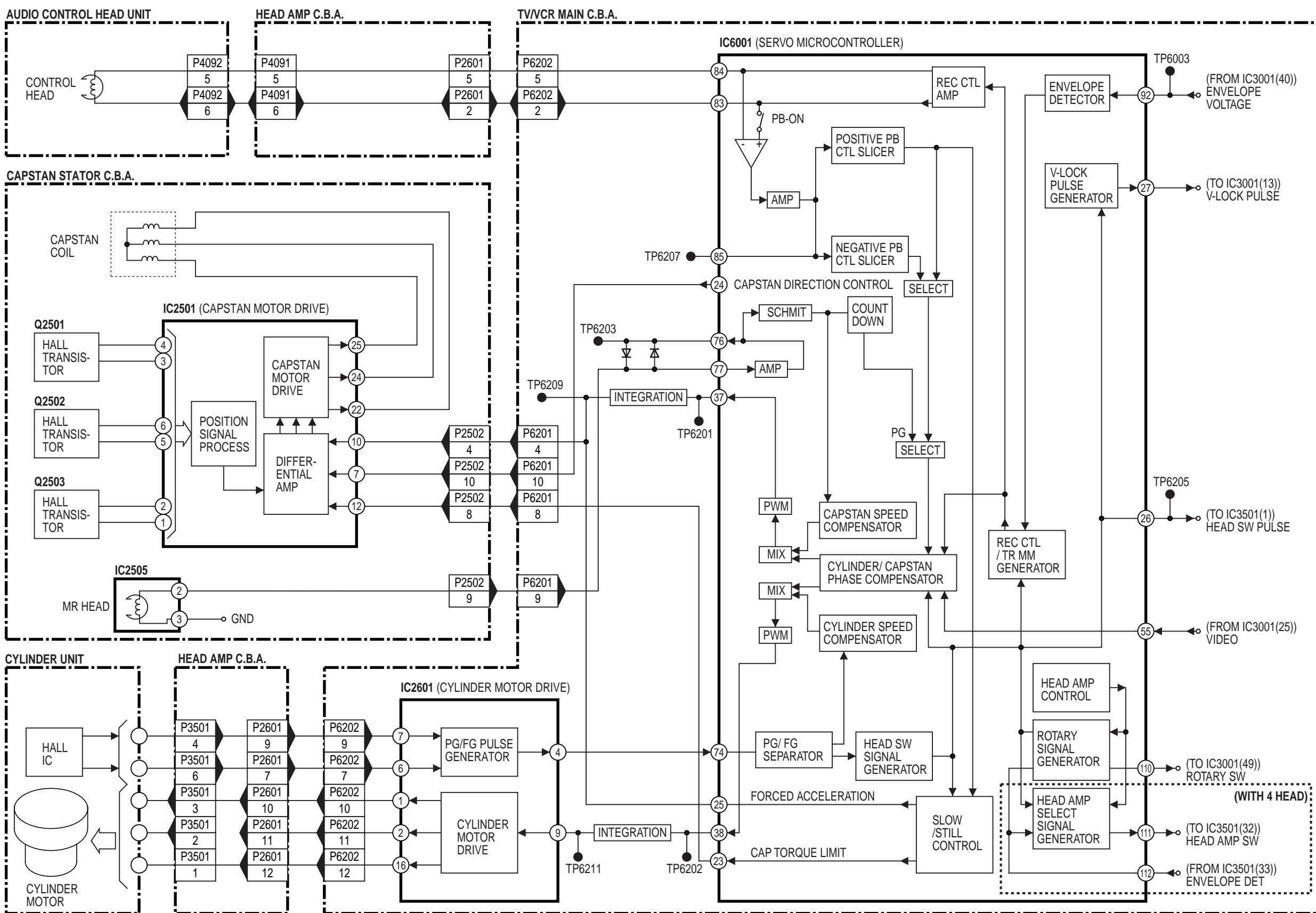
# MTS/SAP AUDIO / AUDIO AMP BLOCK DIAGRAM (FOR MODEL WITH TV STEREO/HI-FI AUDIO)



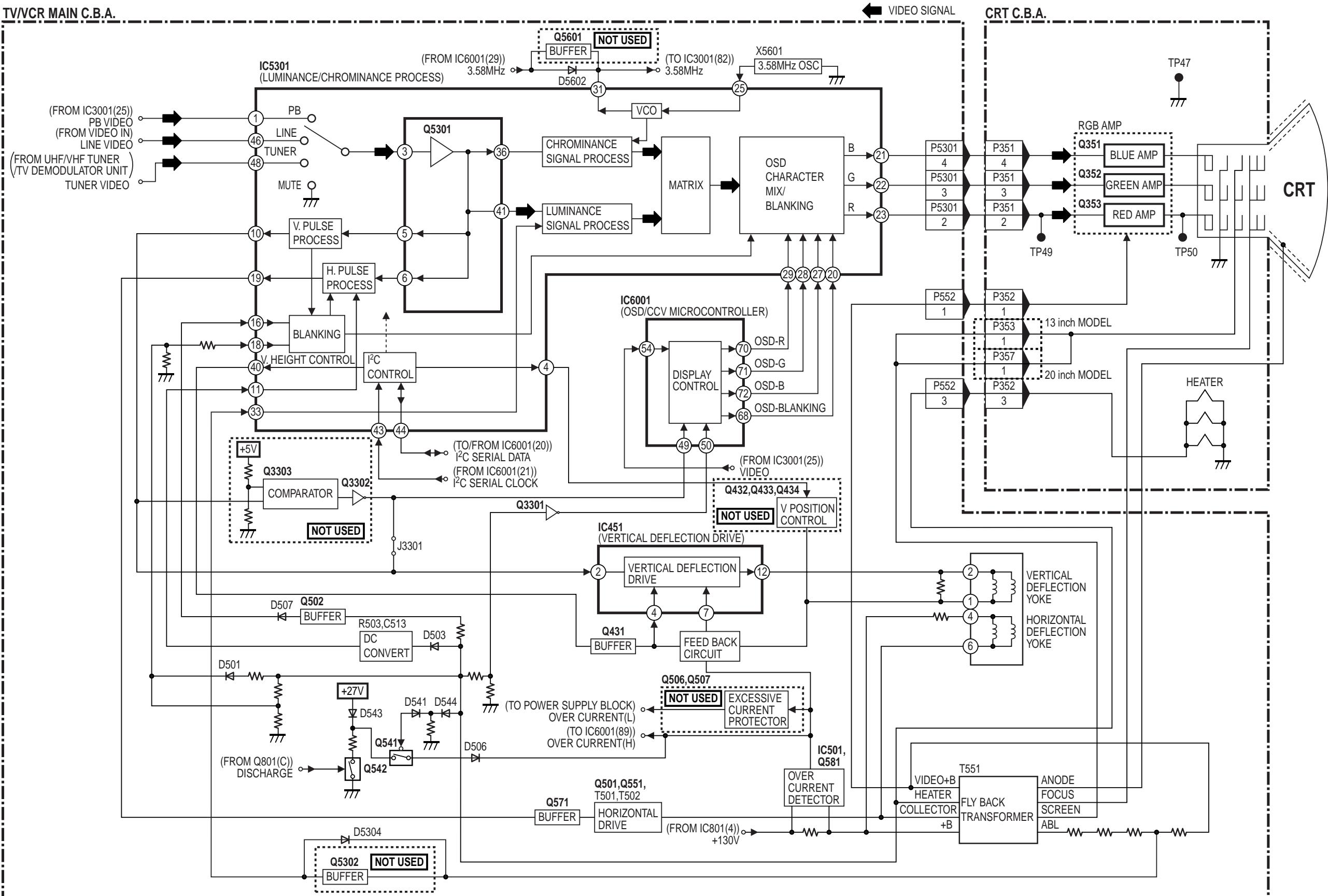
## SYSTEM CONTROL BLOCK DIAGRAM



# SERVO BLOCK DIAGRAM



# TV / Y/C PROCESS BLOCK DIAGRAM





Omnivision VHS

# Panasonic

## Combination VCR Operating Instructions

**Model No. PV-C2061/PV-C2081**



- Initial Setup and Connection Procedures are on pages 8 to 13.
- SELF-DEMO Procedure is on page 4.



As an ENERGY STAR® Partner,  
Matsushita Electric Corporation  
of America has determined that  
this product or product model  
meets the ENERGY STAR®  
guidelines for energy efficiency.



Please read these instructions carefully before attempting to connect,  
operate, or adjust this product. Please save this manual.

Spanish Quick Use Guide is included.

(Guía para rápida consulta en español está incluida.)

LSQT0332A

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Initial Setup

Basic Operation

TV Operation

Timer Operation

Advanced Operation For Your Information

# Important Safeguards and Precautions

**READ AND RETAIN ALL SAFETY AND OPERATING INSTRUCTIONS. HEED ALL WARNINGS IN THE MANUAL AND ON UNIT**

## INSTALLATION

### 1 POWER SOURCE CAUTION

Operate only from power source indicated on unit or in this manual. If uncertain, have your Electric Utility Service Company or Video Products Dealer verify your home power source.

### 2 POWER CORD PLUG

For safety, this unit has a polarized type plug (one wide blade), or a three-wire grounding type plug. Always hold the plug firmly and make sure your hands are dry when plugging in or unplugging the AC power cord. Regularly remove dust, dirt, etc. on the plug.

### POLARIZED PLUG CAUTION:

The plug fits into outlet one way. If it cannot be fully inserted, try reversing it. If it still will not fit, have an electrician install the proper wall outlet. Do not tamper with the plug.

### GROUNDING PLUG CAUTION:

The plug requires a three-hole grounding outlet. If necessary, have an electrician install the proper outlet. Do not tamper with the plug.

### 3 POWER CORD

To avoid unit malfunction, and to protect against electrical shock, fire or personal injury:

- Keep power cord away from heating appliances and walking traffic. Do not rest heavy objects on, or roll such objects over the power cord.
- Do not tamper with the cord in any way.
- An extension cord should have the same type plug (polarized or grounding) and must be securely connected.
- Overloaded wall outlets or extension cords is a fire hazard.
- Frayed cords, damaged plugs, and damaged or cracked wire insulation are hazardous and should be replaced by a qualified electrician.

### 4 DO NOT BLOCK VENTILATION HOLES

Ventilation openings in the cabinet release heat generated during operation. If blocked, heat build-up may result in a fire hazard or heat damage to cassettes.

For your protection:

- a. Never cover ventilation slots while unit is ON, or operate unit while placed on a bed, sofa, rug, or other soft surface.
- b. Avoid built-in installation, such as a book case or rack, unless properly ventilated.

### 5 AVOID EXTREMELY HOT LOCATIONS OR SUDDEN TEMPERATURE CHANGES

Do not place unit over or near a heater or regulator, in direct sunlight, etc. If unit is suddenly moved from a cold place to a warm place, moisture may condense in unit and on the tape causing damage.

### 6 TO AVOID PERSONAL INJURY

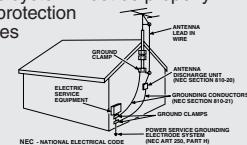
- Never place unit on support or stand that is not firm, level, and adequately strong. The unit could fall causing serious injury to a child or adult and damage to the unit.
- Move any appliance and cart combination with care. Quick stops, excessive force, and uneven surfaces may cause objects to overturn.
- Carefully follow all operating instructions.



## OUTDOOR ANTENNA INSTALLATION

### 1 SAFE ANTENNA AND CABLE CONNECTION

An outside antenna or cable system must be properly grounded to provide some protection against built up static charges and voltage. Section 810 of the National Electrical Code, ANSI/NFPA 70 (in Canada, part 1 of the Canadian Electrical Code) provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



NEC - NATIONAL ELECTRICAL CODE (NEC SECTION 810-20)

NEC SECTION 810-10

NEC ART 250, PART H

### 2 KEEP ANTENNA CLEAR OF HIGH VOLTAGE POWER LINES OR CIRCUITS

Locate an outside antenna system well away from power lines and electric light or power circuits so it will never touch these power sources should it ever fall. When installing antenna, absolutely never touch power lines, circuits or other power sources as this could be fatal.

## USING THE UNIT

Before unit is brought out of storage or moved to a new location, refer again to the INSTALLATION section of these safeguards.

### 1 KEEP UNIT WELL AWAY FROM WATER OR MOISTURE, such as vases, sinks, tubs, etc.

### 2 IF EXPOSED TO RAIN, MOISTURE, OR STRONG IMPACT, unplug unit and have it inspected by a qualified service technician before use.

### 3 ELECTRICAL STORMS

During a lightning storm, or before leaving unit unused for extended periods of time, disconnect all equipment from the power source as well as the antenna and cable system.

### 4 WHEN UNIT IS PLUGGED IN

- DO NOT OPERATE IF:
  - liquid has spilled into unit.
  - unit was dropped or otherwise damaged.
  - unit emits smoke, malodors, or noises.
- Immediately unplug unit, and have it inspected by a service technician to avoid potential fire and shock hazards.
- Never drop or push any object through openings in unit.
- Touching internal parts may cause electric shock or fire hazard.
- Keep magnetic objects, such as speakers, away from unit to avoid electrical interference.

### 5 USING ACCESSORIES

Use only accessories recommended by the manufacturer to avoid risk of fire, shock, or other hazards.

### 6 CLEANING UNIT

Unplug unit. Use a clean, dry, chemically untreated cloth to gently remove dust or debris. DO NOT USE cleaning fluids, aerosols, or forced air that could over-spray, or seep into unit and cause electrical shock. Any substance, such as wax, adhesive tape, etc. may mar the cabinet surface. Exposure to greasy, humid, or dusty areas may adversely affect internal parts.

## SERVICE

### 1 DO NOT SERVICE PRODUCT YOURSELF

If, after carefully following detailed operating instructions, the unit does not operate properly, do not attempt to open or remove covers, or make any adjustments not described in the manual. Unplug unit and contact a qualified service technician.

### 2 REPLACEMENT OF PARTS

Make sure the service technician uses only parts specified by the manufacturer, or have equal safety characteristics as original parts. The use of unauthorized substitutes may result in fire, electric shock, or other hazards.

### 3 SAFETY CHECK AFTER SERVICING

After unit is serviced or repaired, request that a thorough safety check be done as described in the manufacturer's service literature to insure video unit is in safe operating condition.

# Safety Precautions/Mesures de sécurité

**Warning :** To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

**Caution :** To prevent electric shock, match wide blade of plug to wide slot, fully insert.

**Avertissement :** Afin de prévenir tout risque d'incendie ou de chocs électriques, ne pas exposer cet appareil à la pluie ou à une humidité excessive.

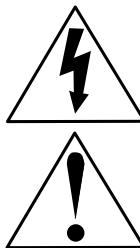
**Attention :** Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

This video recorder, equipped with the HQ (High Quality) System, is compatible with existing VHS equipment.

Only use those tapes with the **VHS** mark. It is recommended that only cassette tapes that have been tested and inspected for use in 2, 4, 6, and 8 hour VCR machines be used.

This television receiver provides display of television closed captioning in accordance with §15.119 of the FCC rules.

**FCC WARNING :** Any unauthorized changes or modifications to this equipment would void the user's authority to operate.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

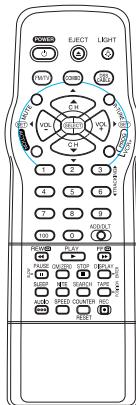
# Before Using

## Congratulations

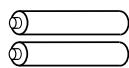
on your purchase of one of the most sophisticated and reliable products on the market today. Used properly, it will bring you and your family years of enjoyment. Please fill in the information below. The serial number is on the tag located on the back of your unit.

Date of Purchase \_\_\_\_\_  
Dealer Purchased From \_\_\_\_\_  
Dealer Address \_\_\_\_\_  
Dealer Phone No. \_\_\_\_\_  
Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_

## Accessories



Remote Control LSSQ0276



Batteries  
2 "AA"

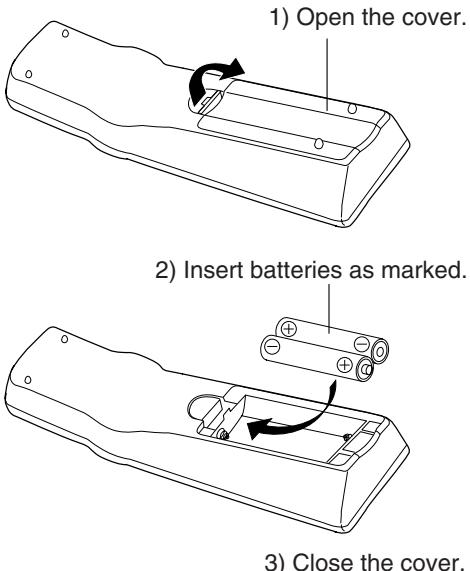
To order accessories,  
call toll free 1-800-332-5368.

## SELF-DEMO Mode

With Power ON, press PLAY/REPEAT on the unit for 7 seconds to deactivate the SELF-DEMO Mode.

Repeat this to display demo screen.

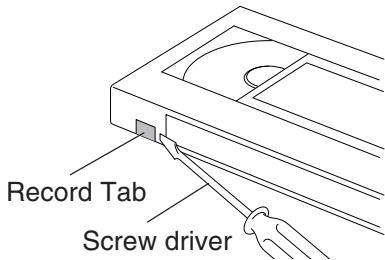
## Loading the Batteries



**Battery replacement caution**  
• Do not mix old and new batteries.  
• Do not mix alkaline with manganese batteries.

## Prevent Accidental Tape Erasure

Break off the tab to protect.



To record again.



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# Location of Controls

## Remote Control Buttons

### Light Tower™ Illuminated Remote Control

#### LIGHT button:

When LIGHT is pressed, available buttons in the selected mode light up and the selected mode button (COMBO or DSS CABLE) flashes for 5 seconds. If no button is pressed, light goes out in 5 seconds to conserve batteries. Also, by holding down a button, you can confirm the selected mode (mode button will flash) in the dark.

#### EJECT button:

When EJECT is pressed, the tape is ejected from Cassette Compartment. If EJECT is pressed during recording, the unit will not respond to the command.

#### EJECT

Page 6

#### POWER

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#### CHANNEL UP/DOWN

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#### SELECT UP/DOWN

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#### CM/ZERO

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#### SLEEP

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#### AUDIO

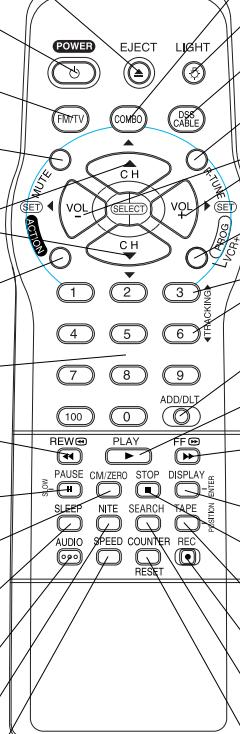
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#### ENTER

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#### REC

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#### SEARCH

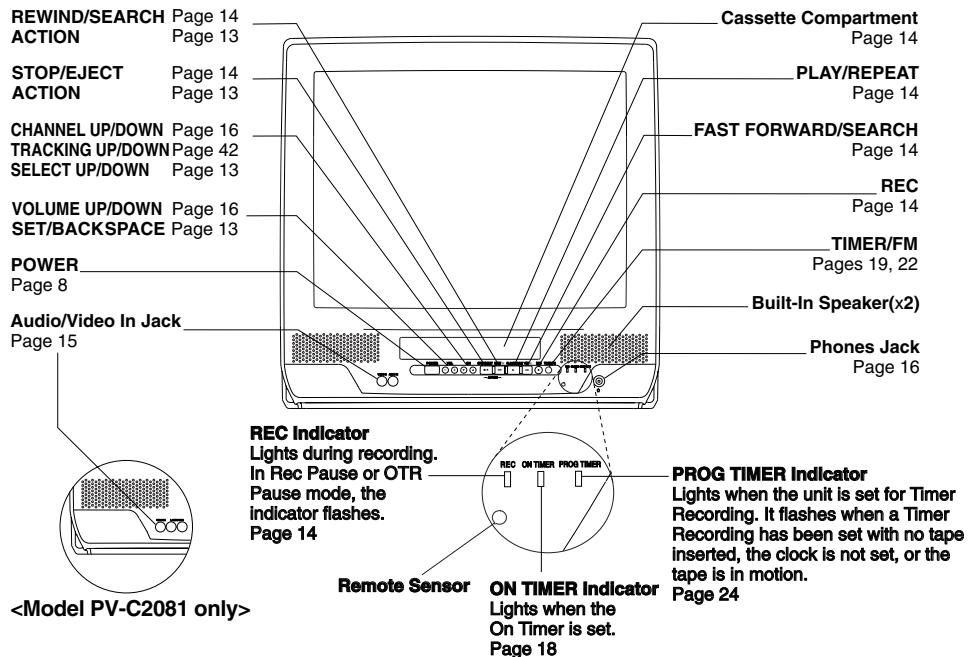
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#### COUNTER RESET

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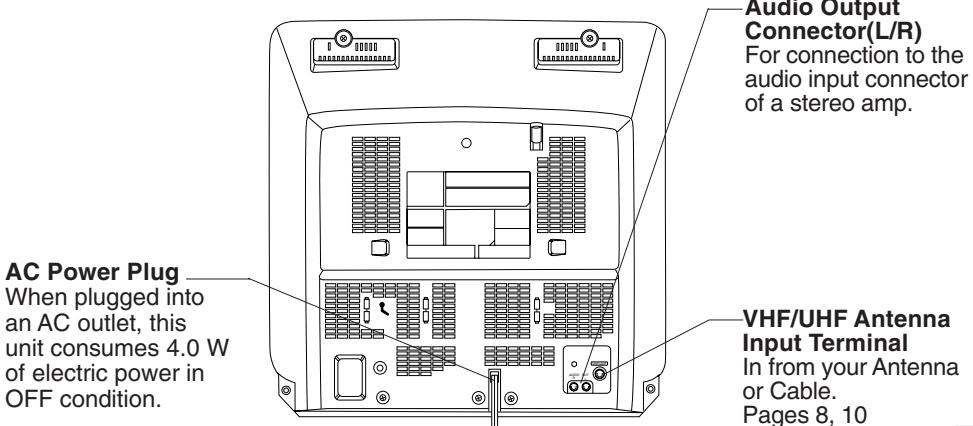
## Front View of the unit and Indicators on the Front Panel

<Model PV-C2061 unit shown>



## Rear View of the unit

<Model PV-C2081 unit shown>

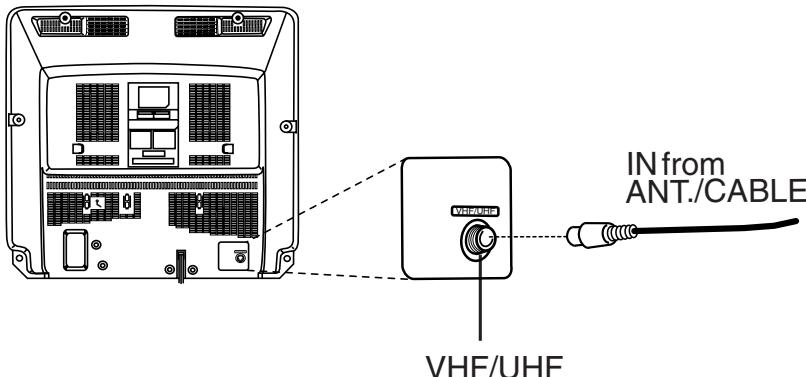


# Initial Setup for ANT. / Cable Connection

## How to Connect

- Connect the Cable from Antenna/Cable to the VHF/UHF terminal on unit.

**UNIT**



## How to do Initial Setup

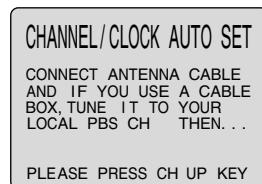
Press COMBO for Combo mode.

- 1 Press POWER\* on the remote or unit.
- 2 When the unit is turned on the first time, SELECT LANGUAGE screen appears.



- 3 Press CH ▲ to select English.  
OR  
Press CH ▼ to select Spanish (Español).  
OR  
Press VOL + to select French (Français).

CHANNEL/CLOCK AUTO SET screen appears.



- If wrong language is set, complete "Reset all unit Memory Functions" steps page 9.

### **WARNING:**

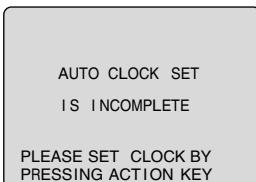
When using "Nut type" RF coaxial cables, tighten with fingers only. Overtightening may damage terminals.

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

**4** Press CH ▲ Key to start CHANNEL / CLOCK AUTO SET operation. Settings are performed automatically. If the setup is completed, the following screen is displayed.



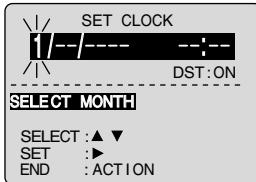
If AUTO CLOCK SET IS INCOMPLETE screen appears, set the clock using MANUAL CLOCK SET procedure as below.



## MANUAL CLOCK SET

If AUTO CLOCK SET was incomplete, manually set the clock as follows.

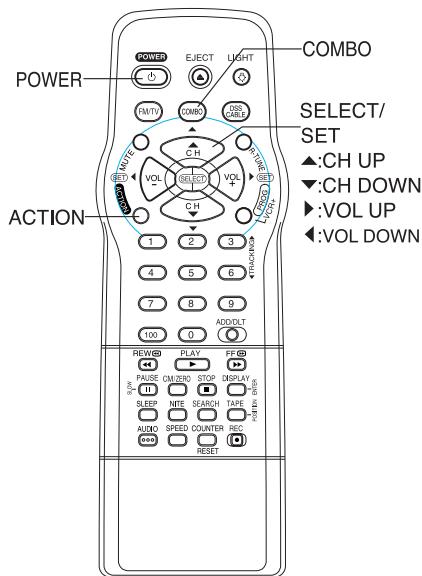
**1** Press ACTION Key on the Remote to display SET CLOCK Menu screen.



**2** Press ▲▼ to select the month and press ▶ to set. In the same manner, select and set the date, year, time, and DST. (Daylight Saving Time)



**3** Press ACTION Key twice to start CLOCK and exit.

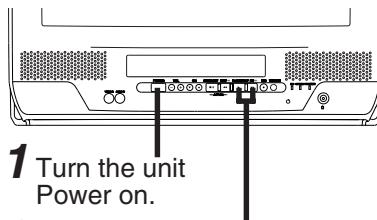


## Reset all unit Memory Functions

When moving unit to a new location, or if a mistake was made in the Initial Setup section.

- Make sure a tape is not inserted in the unit.

<Model PV-C2061 unit shown>



**1** Turn the unit Power on.

**2** Press and hold both PLAY and FF on the unit for more than 5 seconds.

- The power will shut off.
- Please ignore "NO CASSETTE" warning.

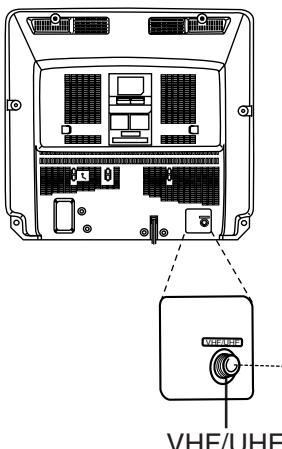
**3** Do "Initial Setup" on page 8.

# Initial Setup for DSS / Cable box Connection

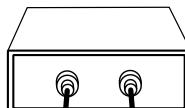
## How to Connect

- Connect the OUT Jack on your cable box to the VHF/UHF terminal on unit with an RF cable.

UNIT



Cable TV  
Converter Box



IN from  
ANT/CABLE

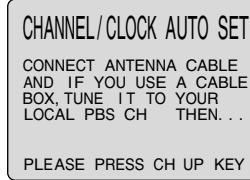
## How to do Initial Setup

Press COMBO for Combo mode.

- 1 Press POWER\* on the remote or unit.
- 2 When the unit is turned on the first time, SELECT LANGUAGE screen appears.



- 3 Press CH ▲ to select English.  
OR  
Press CH ▼ to select Spanish (Español).  
OR  
Press VOL + to select French (Français).  
CHANNEL/CLOCK AUTO SET screen appears.



- Turn on your cable box and set it to PBS(Public Broadcast Station) channel in your time zone. If you use DSS receiver, it must be turned off.

### WARNING:

When using "Nut type" RF coaxial cables, tighten with fingers only. Overtightening may damage terminals.

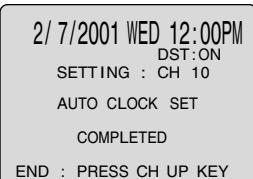
### Note to CABLE System Installer

This reminder is provided to call the CABLE (Cable TV) System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

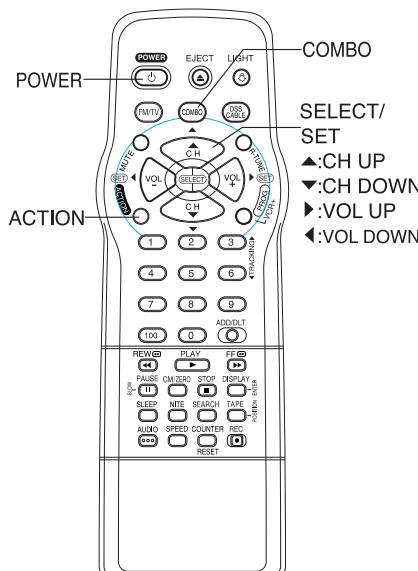
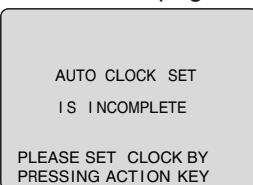
- If wrong language is set, complete "Reset all unit Memory Functions" steps page 9.

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

**4** **Press CH ▲ Key to start CHANNEL / CLOCK AUTO SET operation. Settings are performed automatically. If the setup is completed, the following screen is displayed.**



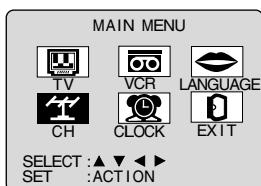
If AUTO CLOCK SET IS INCOMPLETE screen appears, set the clock using MANUAL CLOCK SET procedure on page 9.



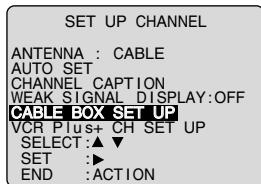
## Cable Box Setup

1) Press ACTION.

2) Press ▲▼◀▶ to select "CH."



3) Press ACTION.



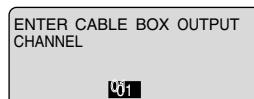
4) Press ▲▼ to select CABLE BOX SET UP and press ▶.

ARE YOU USING  
A CABLE BOX?

YES  
NO

5) Press ▲▼ to select "YES" or "NO" and press ▶.

- If you select...  
■ "YES" → Step 6).
- "NO" → Press ACTION three times to exit.



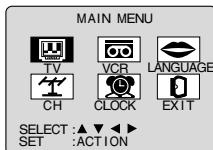
6) Press ▲▼ to select the same channel as your cable box or DSS receiver output channel, then press ▶.

- If necessary, refer to your cable box manual.
- If you are using Audio/Video jack connection for your cable box, select and set "VIDEO OUT" as the output channel.

7) Press ACTION three times to exit.

# Reset Language, Channels, Clock,

1

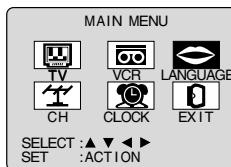


Press ACTION\*  
to display MAIN MENU.

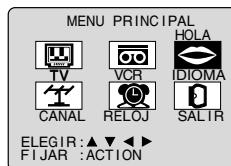
2

## ■ Language

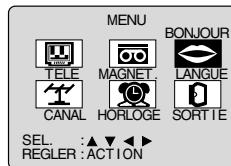
- 1) Press **▲▼◀▶** to select language icon.



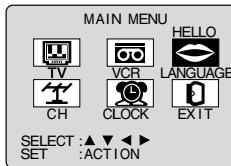
- 2) Press ACTION repeatedly.



For Spanish



For French

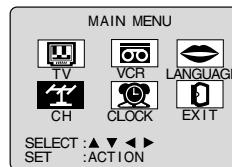


For English

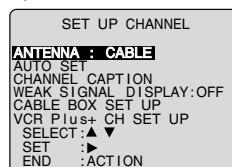
- 3) Press **▲▼◀▶** to select "EXIT." Press ACTION to exit.

## ■ Channels

- 1) Press **▲▼◀▶** to select "CH."



- 2) Press ACTION.



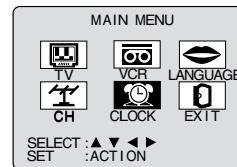
- 3) Press **▲▼** to select "ANTENNA," then press **▶** to set your antenna system ("TV" or "CABLE").

- 4) Press **▲▼** to select "AUTO SET," then press **▶**.

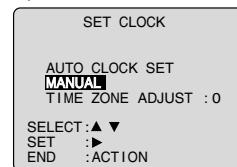
- After Channel Auto Set is finished, Clock Auto Set will be performed.

## ■ Clock

- 1) Press **▲▼◀▶** to select "CLOCK."



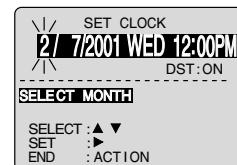
- 2) Press ACTION.



("TIME ZONE ADJUST" appears only when auto clock is set.)

- 3) Press **▲▼** to select "MANUAL" or "AUTO CLOCK SET" and press **▶**.

- For Auto Clock Set, select "AUTO CLOCK SET," then press CH **▲**.



- 4) Press **▲▼** and press **◀▶** to select and set the month, date, year, time, and DST (Daylight Saving Time).

- 5) Press ACTION twice to start the clock and exit this mode.

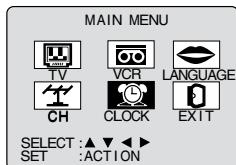
# Time Zone Adjust

\*Important: If a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

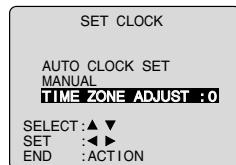
## ■ Time Zone Adjust

(Only when Auto Clock is set.)

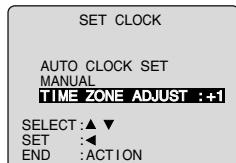
- 1) Press **▲▼◀▶** to select "CLOCK."



- 2) Press **ACTION**.

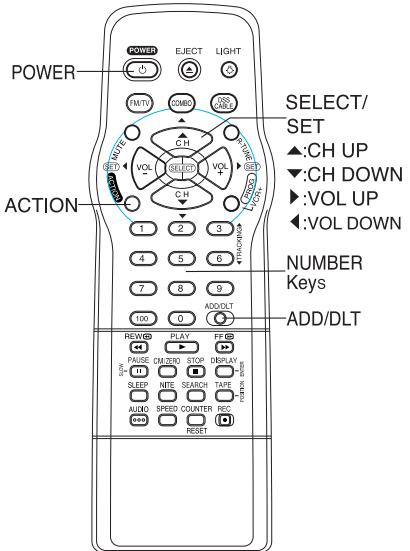


- 3) Press **▲▼** to select TIME ZONE ADJUST and press **◀** or **▶** to subtract or add hour(s) as necessary.



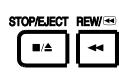
- 4) Press **ACTION** twice to exit.

- TIME ZONE ADJUST returns to "0" if clock is set manually.



## Basic Operation

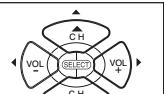
### ACTION key on the unit



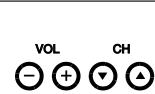
On Unit

You can operate the menu screen using unit buttons. To display the menu, press STOP/EJECT and REW together with no tape inserted. To exit the menu, repeat above with or without tape inserted until normal screen appears.

### Using **▲▼◀▶** keys



On Remote



On Unit

- ▲ : CH UP
- ▼ : CH DOWN
- ▶ : VOLUME UP
- ◀ : VOLUME DOWN

Whenever the menu or program screen is displayed, CHANNEL UP/DOWN function as **▲▼** and VOLUME UP/DOWN function as **◀▶** only.

### Add or Delete a Channel

To add channel:  
Select channel with number keys and press ADD/DLT.

CHANNEL 08 ADDED

To delete channel:  
Select channel with **▲▼** or number keys and press ADD/DLT.

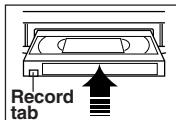
CHANNEL 08 DELETED

# Playback a Tape

## Ready Check List

- All connections are made.
- Your unit is plugged in.

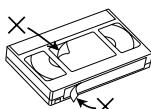
1



To prevent tape jam,  
remove loose or peeling labels  
from tapes.

### Insert a cassette.

- The unit power comes on automatically.



## 2 Press PLAY.

- Playback begins if cassette has no record tab.
- Forward/Reverse scene search
  - Press FF or REW
  - Press again or PLAY to release.
- Still (Freeze) picture
  - Press PAUSE/SLOW
  - Press PLAY to release.
- Slow Motion picture
  - Hold down PAUSE/SLOW in Still mode
  - Press PLAY to release.
- Frame by Frame picture
  - Press PAUSE/SLOW in Still mode
  - Press PLAY to release.

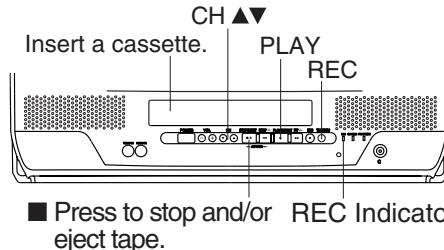
### Notes

- These features work best in SP or SLP mode.
- After the unit is in Still or Slow mode for 3 minutes, it will switch to Stop mode automatically to protect the tape and the video head.

- Stop → Press STOP
- Rewind tape → Press REW in Stop mode
- Fast forward tape → Press FF in Stop mode
- Eject tape → Press EJECT on the remote or STOP/EJECT on the unit

### You can operate on the unit

<Model PV-C2061 unit shown>



# Record On a Tape

## 1 Insert a cassette with record tab.

- The unit power comes on automatically.

## 2 Press CH ▲▼\* or number keys to Select Channel.

- For "LINE" input, see bottom of next page.

## 3 Press SPEED to select recording speed (see page 42).

SP = Standard Play

LP = Long Play

SLP = Super Long Play

- Selected speed is displayed.

## 4 Press REC to start recording.

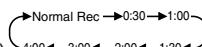
- To edit out unwanted portions, press PAUSE/SLOW to pause and resume recording.
- You cannot view another channel during recording.

### ■ Stop → Press STOP

### ■ One Touch Recording (OTR)

Press REC repeatedly

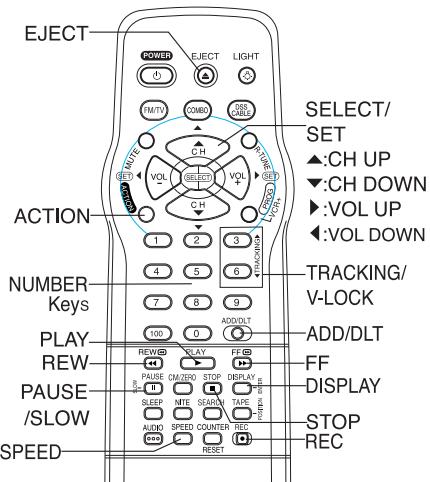
to set the recording length (30 min - 4 hours.)



- The unit stops recording at a preset time.
- PROG TIMER indicator lights on the unit.

### Notes

- After the unit has been in Rec Pause mode for 5 minutes, it will stop automatically to protect the tape and the video head.
- The remaining recording time of an OTR can be displayed by pressing DISPLAY.



# Copy Your Tapes (Dubbing)

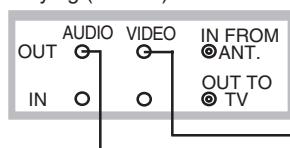
**Important:** If a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Connections you'll need to make.

<Model PV-C2061 unit shown>

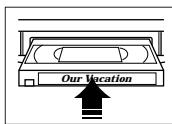
Recording (Editing) unit

Playing (Source) VCR



### Playback (Source)

1



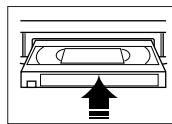
Insert pre-recorded tape.

2



Press PLAY then PAUSE at starting point to put in Standby mode.

3



Insert blank tape with record tab.

- Dubbing tapes protected with Copy Guard will have poor quality results.



Select "LINE" mode.

See "Selecting Input Mode" below.

4

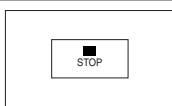


Press PLAY to start dubbing.



Press PAUSE/SLOW to start dubbing.

5



Press STOP to stop dubbing.



Press STOP to stop dubbing.

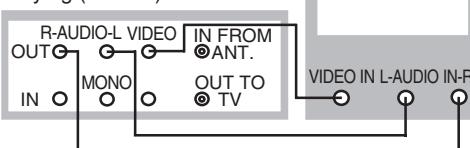
### Caution

- Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

<Model PV-C2081 unit shown>

Recording (Editing) unit

Playing (Source) VCR



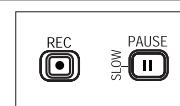
### Recording (Editing) unit

Insert blank tape with record tab.

- Dubbing tapes protected with Copy Guard will have poor quality results.

Select "LINE" mode.

See "Selecting Input Mode" below.

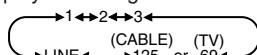


Press REC, then PAUSE/SLOW immediately to put in Standby mode.

### Selecting Input Mode

#### Method 1:

Press CH  $\blacktriangle\triangledown$ . The display will change as follows.



#### Method 2:

- Press ACTION for MAIN MENU.
- Press  $\blacktriangle\triangledown\blackleftarrow\blackrightarrow$  to select "TV", then press ACTION for SET UP TV screen.
- Press  $\blacktriangle\triangledown$  to select "INPUT SELECT," and then press  $\blackrightarrow$  to select "TUNER" or "LINE."
- Press ACTION twice to exit this mode.

# TV Operation

\*Important: If a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

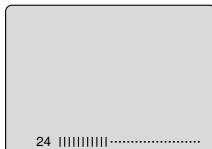
**1** Press POWER\* on the remote or unit.

**2**



Use CH ▲▼ or  
number keys to  
select a channel.

**3**

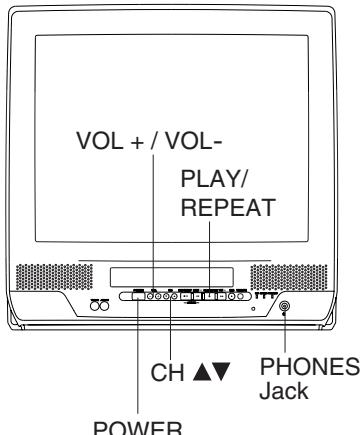


Press VOL + or VOL -  
to adjust volume.

## Ready Check List

- All connections are made.
- Your unit is plugged in.

<Model PV-C2061 unit shown>



## NIGHT (NITE) Mode

Color and picture intensity levels are adjusted so the screen is easier on your eyes during night time use.

**NIGHT**

Press NITE to set NIGHT mode.

- NIGHT mode may be selected when watching TV, playing a tape, or while in FM mode.

Press NITE to cancel.

- Previous settings are restored.
- NIGHT mode is canceled when power is turned off or power failure occurs.

## Using the 100 key

When selecting CABLE channels 100 to 125 with the number keys, first press the 100 key, and then enter the remaining two digits.

## Rapid Tune

Press R-TUNE to display the last channel you were watching.

## Audio Mute

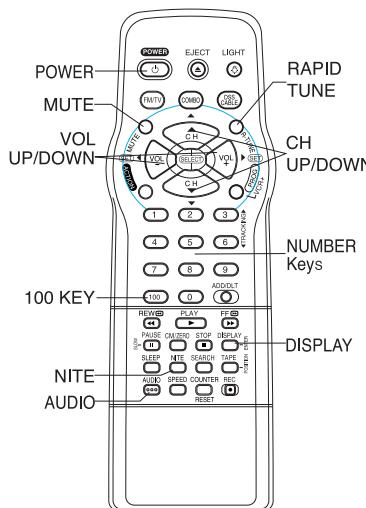
Press MUTE to instantly mute the sound. Press again to restore the previous sound level.

## Phones

Connect an earphone (not supplied) or headphones (not supplied) to the Phones Jack.

# MTS Broadcast/TV Stereo System

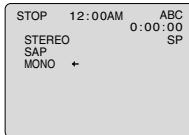
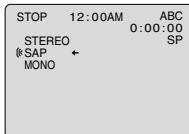
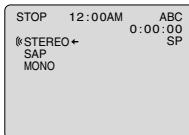
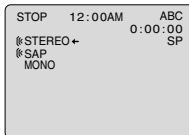
Equipped with dbx® -TV Noise Reduction for true MTS reproduction. dbx® -TV Noise Reduction is required for good stereo separation and audio fidelity. dbx® is a registered trademark, and is licensed by dbx® Technology Licensing.



## Receivable Broadcast Types

The following are possible audio broadcast types and on-screen displays. The signal being received is indicated with an “” mark while the selected audio mode is indicated with an arrow. To change the audio mode for these broadcasts, see the “Select Audio Mode for TV Viewing” section (below).

**Press DISPLAY to display the broadcast signal being received.**



### MTS Stereo and SAP broadcast

Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are being received simultaneously. Select the STEREO or SAP audio mode.

### MTS Stereo broadcast

Multi-channel Television Sound Stereo broadcast. Select STEREO audio mode.

- If stereo broadcast is weak and the display flickers, select MONO audio mode for possibly better results.

### SAP broadcast

Secondary Audio Program (sub language). Select SAP audio mode for the sub language.

### MONO broadcast

Normal monaural sound broadcast.

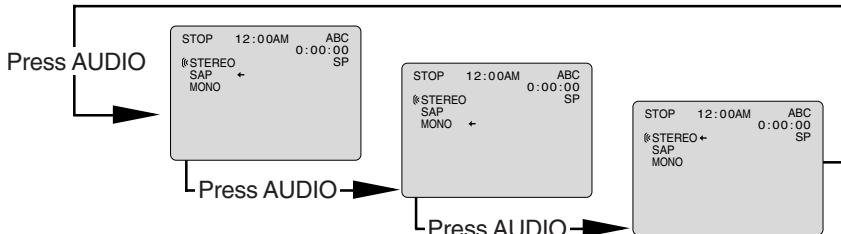
## Select Audio Mode for TV Viewing

**Press AUDIO to select the desired audio mode as described above.**

(Arrow shows selection.)

- Each press of AUDIO will change the audio mode as shown below.
- “SAP” is selected with first press of AUDIO.

< Example >



# TV Timer Features

## ON-TIMER with Alarm

This unit can be set to automatically power on in one of 3 modes (TV, Playback, or FM radio.)

You can also combine the On-Timer with a one minute alarm that gradually increases in volume.



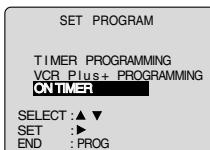
### Ready Check List

The clock is set to correct time.

#### 1 Press PROG/VCR+\*

to display SET PROGRAM screen.

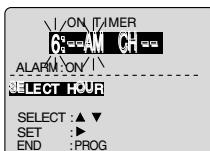
2



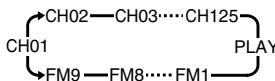
1) Press **▲▼** to select "ON TIMER."

2) Press **▶** to display ON TIMER screen.

3



- ON-TIMER mode selection order

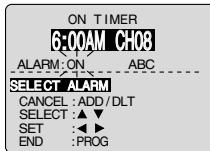


1) Press **▲▼** to select desired settings.

2) Press **▶** to set the ON-TIMER TIME or ON-TIMER mode.

- Make sure a tape is inserted if Playback mode is selected.
- See "FM Radio" on page 22 for instructions on how to preset FM stations.

4



Press **▲▼** to select ALARM "ON" or "OFF."

When "ON" is selected,

an alarm will gradually increase in volume for one minute or until canceled by pressing any button (including VOL + -).

To Make Corrections,  
use **▲▼** and **◀▶** to move back and correct.

#### 5 Press PROG/VCR+

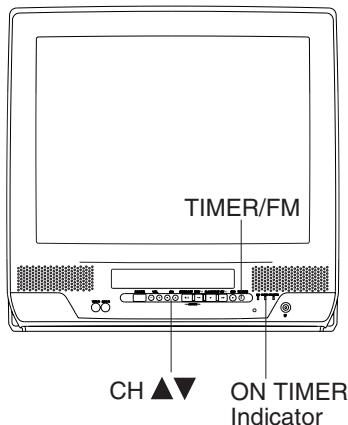
to set ON TIMER.

- "ON TIMER SET" is displayed.
- ON TIMER Indicator lights on the unit.

To Cancel ON-TIMER set,

Repeat steps 1 and 2. Then, press ADD/DLT to clear the time in step 3. Now, press PROG/VCR+ to end. "ON TIMER END" briefly appears on-screen.

<Model PV-C2061 unit shown>



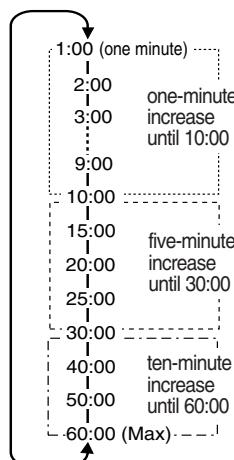
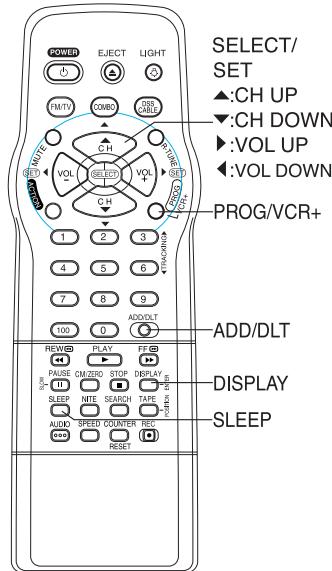
### Note

If no button on the remote or unit (including a button used to turn off the alarm) is pressed within 60 minutes after unit turns itself on, it will turn itself back off.

18

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.



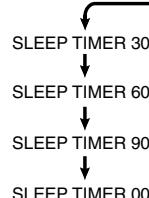
## SLEEP TIMER

This unit can be set for auto power off.

**Press SLEEP** repeatedly to set SLEEP TIMER.

- Pressing DISPLAY with sleep timer set displays remaining time.

**Press SLEEP** repeatedly until "SLEEP TIMER 00" appears to cancel.

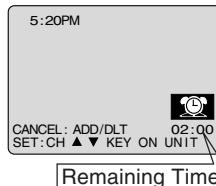


## INSTANT ALARM

You can set a timer alarm up to 60 min. Useful when you are cooking, etc.

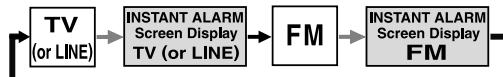
**1** Press TIMER/FM on the unit to display the instant alarm CANCEL/SET screen.

**2**



Remaining Time

- Pressing TIMER/FM repeatedly on the unit will change display as follows.



To cancel, press TIMER/FM then press ADD/DLT on the remote while CANCEL/SET screen is displayed.

To increase timer in progress, repeat step 2. Time will be rounded up to next 1, 5, or 10 minute interval. (See chart left.)

<Example>

- If current time remaining is 12:15, countdown will restart from 15:00.
- If current time remaining is 9:15, countdown will restart from 10:00.

**3** Alarm will sound at 0: 00.

**Press any button** to stop

- The volume of the alarm gradually increases for one minute and then continues to beep until any button is pressed.

### Note

While timer function is in progress, you can change channels on the unit with CH ▲▼ while "CANCEL/SET" screen is not displayed.

# Closed Caption System

## Closed Caption is ...

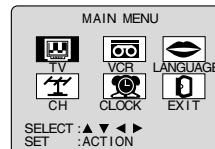
This multi-use system not only allows the hearing impaired to enjoy selected programs, but also makes useful information from TV stations available to everyone.

## Closed Caption Mode Feature

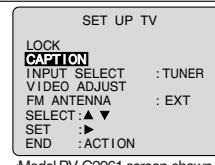
### 1 Press ACTION\*

to display MAIN MENU.

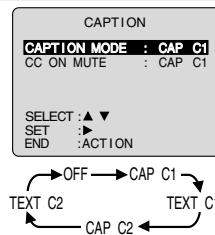
2



3



4



5 Press ACTION three times to return to the normal screen.

## Recording and Playing Back a Closed Caption/Text Program

**Record** : Record normally. Closed Caption/Text signal, if present, is recorded automatically.

**Playback** : Start playback. Do above steps to select desired caption mode.

## Closed Caption Mode Selections

### Caption Mode: CAP C1 or C2

A narration of selected TV programs is displayed.

Check TV program listings for CC(Closed Caption) broadcasts.

### Caption Mode: TEXT C1 or C2

The lower half of the screen will be blocked out. When the TV station broadcasts information, such as program listings, it will appear in this space.

### Caption Mode: OFF

Closed Caption /Text narration will not be displayed.

**NOTE** : The closed caption or text signal may be broadcast over C1, C2, or both.

Also, text contents can vary so you may wish to try different settings.

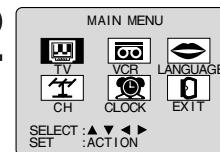
## Caption On Mute Feature

Closed Caption narration, if available, is displayed when MUTE button is pressed for silence.

### 1 Press ACTION

to display MAIN MENU.

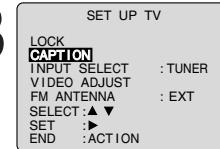
2



1) Press ▲▼◀▶ to select "TV."

2) Press ACTION to display SET UP TV screen.

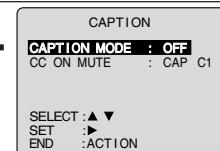
3



1) Press ▲▼ to select "CAPTION".

2) Press ▶ to display CAPTION screen.

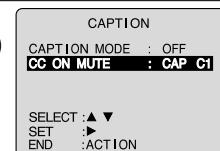
4



1) Press ▲▼ to select CAPTION MODE.

2) Press ▶ repeatedly to select "OFF."

5



1) Press ▲▼ to select CC ON MUTE.

2) Press ▶ repeatedly to select desired mode.

- Each press of ▶ will change the display as shown left.

- The caption may be broadcast over CAP C1 or C2.

6 Press ACTION three times to return to the normal screen.

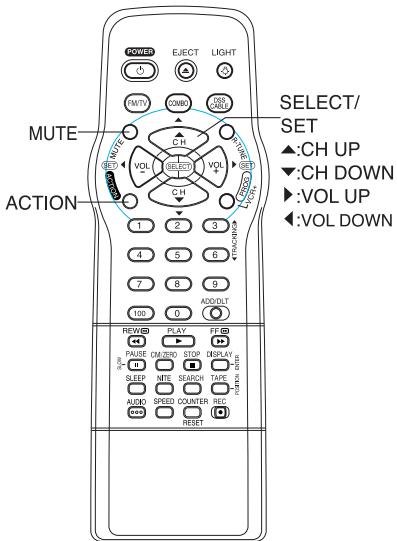
7 Press MUTE to mute the sound and display closed captioning.

- To cancel, press MUTE again.

# Picture Adjustment

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

**1** Press ACTION  
to display MAIN MENU.



**2**

MAIN MENU

TV	VCR	LANGUAGE
CH	CLOCK	EXIT

SELECT : ▲▼◀▶  
SET : ACTION

1) Press ▲▼◀▶ to select "TV."  
2) Press ACTION to display SET UP TV screen.

**3**

SET UP TV

LOCK	.....
CAPTION	.....
INPUT SELECT	: TUNER
<b>VIDEO ADJUST</b>	: EXT
FM ANTENNA	.....
SELECT : ▲▼	
SET : ▶	
END : ACTION	

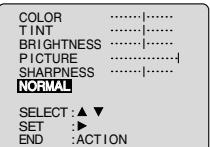
1) Press ▲▼ to select VIDEO ADJUST.  
2) Press ▶ to display screen.

<Model PV-C2061 screen shown.>

**4**

COLOR	.....
TINT	.....
BRIGHTNESS	.....
PICTURE	.....
SHARPNESS	.....
NORMAL	.....
SELECT : ▲▼	
ADJUST : ▲▼	
END : ACTION	

1) Press ▲▼ to select an adjustment item.  
(See below left.)  
2) Press ▲▼ to adjust.



To Reset Picture Controls.  
Press ▲▼ and ▶ to select and set "NORMAL."  
All controls return to their factory settings.

## Picture Adjustment

- **COLOR Control**  
Adjust color intensity.
- **TINT Control**  
Adjust for natural flesh tones.
- **BRIGHTNESS Control**  
Adjust picture brightness.
- **PICTURE Control**  
Adjust picture intensity by adjusting both contrast and color level in the proper balance.
- **SHARPNESS Control**  
Adjust picture sharpness.

**5** Press ACTION three times to exit.

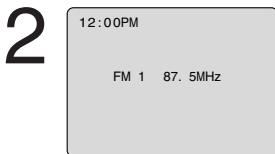
# FM Radio

## FM Radio is ...

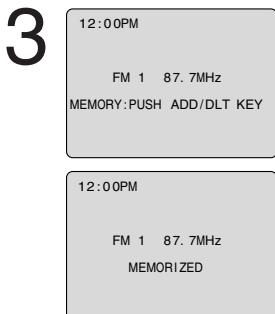
This unit has an FM radio with built-in antenna, 9 station preset, and a band range of 87.5 ~ 108.1 MHz. You can even set the On-Timer (page 18) to wake up to your favorite radio station.

## FM Radio Setup

**1** Press FM/TV\* on the remote or press TIMER/FM twice on the unit to display FM radio mode.



**Press a number key (1~9)** to select the FM preset number.



**To Make Corrections,** select station with a number key, then do step 3 again.

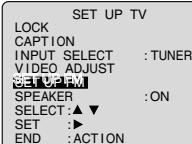
**To exit FM mode,** press FM/TV on the remote or TIMER/FM twice on the unit.

**1) Press CH ▲▼** to select the desired radio station. (Each press changes frequency 200 KHz.)

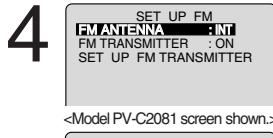
**2) Press ADD/DLT** to set the radio station.

**Hold down CH ▲ or ▼** for a few seconds, then release to quickly scan for FM stations in your area.  
• To cancel, press CH ▲ or ▼ while in search mode.

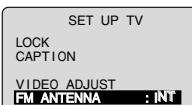
**3 <step 3,4 PV-C2081 only>**



**1) Press ▲▼ to select SET UP FM.**  
**2) Press ▶ to display screen.**



<Model PV-C2081 screen shown.>



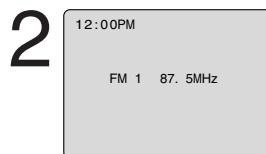
<Model PV-C2061 screen shown.>

**■ For cable TV users** → "INT"  
**■ For antenna users** → "EXT"

**5 Press ACTION twice (PV-C2061), or three times (PV-C2081) to end setup.**

## Using FM Radio

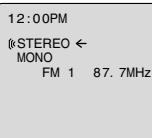
**1 Press FM/TV on the remote or press TIMER/FM twice on the unit to display FM radio mode.**



**Press a number key (1~9)** to select a preset FM number (see steps 2 and 3 on this page).

**To cancel,** press FM/TV on the remote or TIMER/FM twice on the unit.

## To select Audio Mode for FM Radio

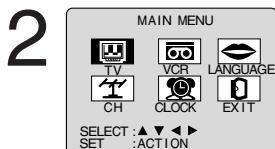


**Press AUDIO** repeatedly to select "STEREO" or "MONO" in FM Radio mode.

## Notes

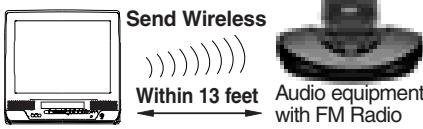
- FM radio cannot be recorded on a Video cassette.
- You may get better reception by repositioning the unit.
- You cannot select FM Radio mode during playback or record, or while a blue back screen (PROG/VCR+, ACTION, MENU) is displayed.
- Once stations are set, the selected station and current time are displayed when FM Radio mode is entered. To remove time, press DISPLAY. If DISPLAY is pressed again, the unit status screen appears.

**1 Press ACTION** to display MAIN MENU.



# FM Transmitter

<For Model PV-C2081 only>



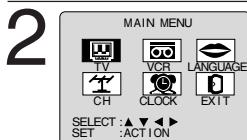
Carrier Frequency : 93 ~ 97, 99 ~ 103 MHz

## FM Transmitter is ...

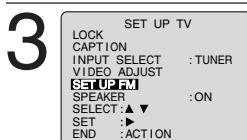
This unit's sound can be heard on an FM Radio. First, tune your radio to a vacant (no broadcast) station between 93 ~ 97 or 99 ~ 103 MHz. Then, set the combo to the same station. Now, fine-tune this unit so the sound comes in clearly.

## FM Transmitter Carrier Frequency Setup

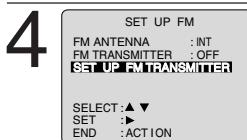
**1 Press ACTION**  
to display MAIN MENU.



- 1) Press **▲▼▶◀** to select "TV."
- 2) Press **ACTION** to display SET UP TV screen.

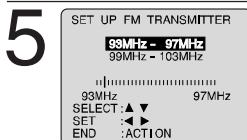


- 1) Press **▲▼** to select SET UP FM.
- 2) Press **▶** to display screen.



- 1) Press **▲▼** to select SET UP FM TRANSMITTER.
- 2) Press **▶** to display screen.

- When step 4 is done, if FM TRANSMITTER is "OFF," the unit is automatically set to "MONO."



- 1) Press **▲▼** to select the desired frequency range. (93-97 or 99-103 MHz)
- 2) Press **◀▶** to select the Carrier Frequency.
- 3) Press **ACTION** to set the Carrier Frequency. (The screen in step 4 is redisplayed.)

**To Make Corrections,**  
select frequency with **CH ▲▼▶◀**, then repeat step 5.

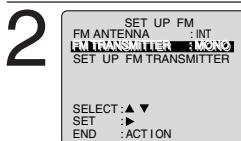
**6 Press ACTION** four times  
to end setup

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## FM Transmitter Control

Set to "STEREO" if you wish to listen in stereo.

**1 Do "FM Transmitter Carrier Frequency Setup" steps 1~3 at left.**



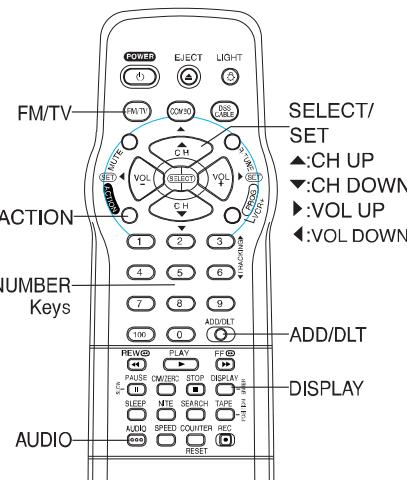
- 1) Press **▲▼** to select FM TRANSMITTER.
- 2) Press **▶** to select "OFF", "MONO", or "STEREO."

• If the sound becomes noisy, change the unit setting from STEREO to MONO or the FM Radio from stereo to monaural.

**3 Press ACTION three times**  
to end setup

### Notes

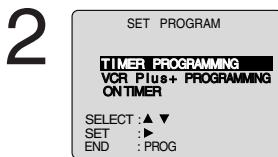
- The Carrier Frequency shown by the selector bar is a guide only. Please listen to the sound and adjust accordingly.
- The unit will transmit sound when unit power is on and "FM TRANSMITTER : MONO or STEREO" is selected.
- When unit power is turned off, "FM TRANSMITTER" returns to "OFF" setting.
- Please place your FM Radio within 13 feet of the unit.
- Interference occurs when you select CATV channels 95, 96, or 97, while FM Transmitter is operating.
- FM Transmitter will not work in FM Radio Mode.
- Depending on the positioning or type of FM Receiver, the sound signal may become noisy. In this case, change the FM Receiver from Stereo to Monaural.
- Please note the current FM Transmitter capability is the maximum level allowed by FCC standard for low power license-exempt radio communication devices.



# Timer Recording

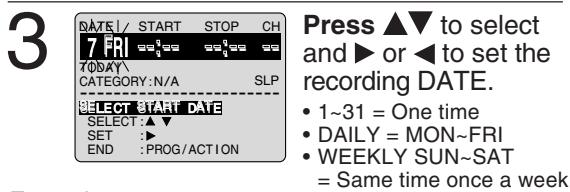
You can set up to 8 programs to be recorded while you are away.

**1 Press PROG/VCR+\***  
to display SET PROGRAM screen.

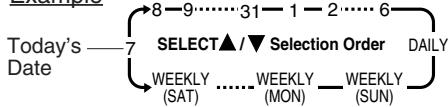


**1) Press ▲▼ to select TIMER PROGRAMMING.**  
**2) Press ▶ to display screen.**

- If a program is already in memory, press ▲▼, and ▶ to select an unused program number.

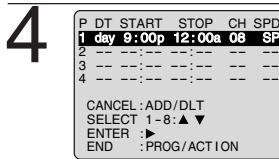


**Example**



**Repeat step 3 to set:**

- start time, stop time
- Channel (or LINE for outside source)
- Category [N/A (not applicable), SPORTS, MOVIE, COMEDY, MUSIC, DRAMA]
- Speed (SP, LP, SLP)



**Press PROG/VCR+ (or ACTION) to end the program.**

**To Enter More Programs**  
**Press ▲▼ to select and ▶ to set a blank program number, and then repeat step 3.**

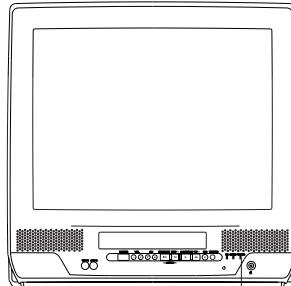
**5 Press PROG/VCR+ twice (or ACTION) to exit this mode.**

- If you're using a cable box, make sure that it is tuned to the desired channel and the power is left on for timer recording.
- PROG TIMER indicator lights on the unit.

## Ready Check List

- All connections are made.
- Your unit is plugged in.
- The clock is set to correct time.
- The tape is long enough.
- The record tab is in place.

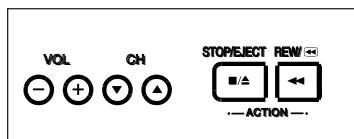
<Model PV-C2061 unit shown>



PROG TIMER Indicator

## Timer Recording Using unit Buttons

You can set a Timer Recording using ACTION key on the unit.  
(See page 13.)



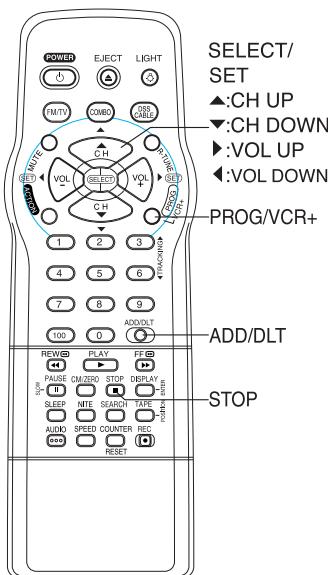
- 1 Press STOP/EJECT and REW together without a tape inserted to display MAIN MENU.
- 2 Press ▲▼ + - to select "VCR" and STOP/EJECT and REW together to display SET UP VCR screen.
- 3 Press ▲▼ to select "TIMER PROGRAM" and + to display the TIMER PROGRAM screen.
- 4 Repeat main steps 3 ~ 5.

\*Important: If a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Cancel a Timer Recording: (Recording is in progress)

Hold down STOP for a few seconds to cancel the Timer Recording.

- Any future daily or weekly recordings will be performed as programmed.



## Review, Replace or Clear Program Contents : (Recording is not in progress)

**1 Repeat steps 1 and 2 on page 24.**

**2**

P	DT	START	STOP	CH	SPD
1	Fri	9:00p	12:00a	00	SP
2	8	10:00a	12:00p	00	SP
3	10	8:00p	9:00p	10	SP
4	SU	9:00p	10:00p	L	LP

CANCEL : ADD/DLT  
SELECT 1-8:▲▼  
ENTER : ▶  
END : PROG/ACTION

**3**

To Replace program...

DATE /	START	STOP	CH
8 SAT	9:00P	12:00A	00
TODAY			ABC
			SP
CATEGORY: MOVIE			

SELECT : START DATE  
SELECT : ▲▼  
SET : ▶◀  
END : PROG/ACTION

- 1) Press ▶ to display.
- 2) Press ▲▼ to select and press ◀ or ▶ to set new program contents.
- 3) Press PROG/VCR+ (or ACTION).

To Clear program...

Press ADD/DLT.

P	DT	START	STOP	CH	SPD
1	---	---	---	---	---
2	8	10:00p	12:00a	125	SP
3	10	8:00p	9:00p	10	SP
4	SU	9:00p	10:00p	L	LP

SELECT 1-8:▲▼  
ENTER : ▶  
END : PROG/ACTION

**4**

Press PROG/VCR+ twice (or ACTION) to exit this mode.

### Notes

- 2 minutes before Timer recording is performed, "PLEASE PREPARE FOR TIMER REC" appears and/or the PROG TIMER Indicator flashes. Be sure a cassette with record tab is loaded and the unit is in Stop mode.
- If the start times of two programs overlap, the lower numbered program will have priority.
- If the start time for a Timer Recording comes up during a normal recording or One Touch Recording (page 14), the Timer Recording will not be performed.
- If there is a power interruption of more than one minute, the recording may not be performed or continued.
- If "INCOMPLETE" appears after all items have been set, check all entries and make necessary corrections.

# Timer Programming using VCR Plus+® System

## VCR Plus+ System is...

This feature allows you to set most items of a Timer Recording by simply entering a special code number (PlusCode) found in TV GUIDE and selected newspaper TV listings.

### Initial Setup...

In order to do Timer Programming using VCR Plus+, the Initial Setup (Clock and Channels) on page 8 to 13 must be done.

### Channel Setup...

Since PlusCode numbers assigned to channels (found in TV Guide and selected newspapers) may differ from channels in your viewing area, you'll need to enter your local TV channel number for each corresponding Guide Channel. Once Channel Setup is done, the correct local channel will be selected when PlusCodes are used to program this unit.

### Channel Setup Preparations

To complete step 4 right, make a local channel list (see example below).

You will need the following:

- A normal TV and/or Cable station line up and the channel numbers your receive them on.
- A list of Guide (VCR Plus+) channel numbers for stations you receive (see TV Guide and selected newspapers.)

- 1 Make a 3-column chart.  
In the left column, write all station names you receive.
- 2 In the middle column, write each station's Guide (VCR Plus+) number (see TV Guide, etc.).
- 3 In the right column, write the channel number your TV receives the station on.

#### < EXAMPLE ONLY >

Broadcast or Cable Station Name	Assigned Guide (VCR Plus+) Channel no.	Channel no. your TV receives the station on
HBO	33	15
Nickelodeon	38	20
CBS	34	04
FOX	11	

### VCR Plus+ Channel Setup

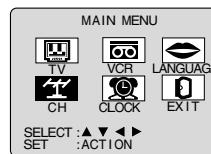
[For DSS / Cable Box connection only.]

At first, do Channel Setup Preparations left.

#### 1 Press ACTION\*

to display MAIN MENU.

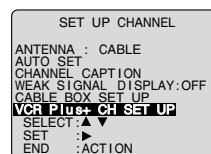
2



1) Press ▲▼◀▶ to select "CH."

2) Press ACTION to display SET UP CHANNEL screen.

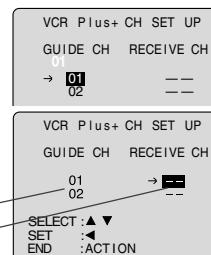
3



1) Press ▲▼ to select VCR Plus+ CH SET UP.

2) Press ▶ to display screen.

4



1) Press ▲▼ to scroll up/down the GUIDE CH column.

2) Press ▶ to move cursor to right column.

3) Press ▲▼ to change the CABLE CH number.

4) Press ◀ to set VCR Plus+ channels.

• Repeat step 4 until list is complete.

#### To Make Corrections

Press ▲▼ and ▶ to move to error, then ▲▼ to change, or ADD/DLT to erase number.

#### 5 Press ACTION three times to end the setup.

\*Important: If a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Ready Check List

- The clock is set to correct time.
- VCR Plus+ System Setup is complete. (See page 26.)

### Use normal Timer Recording steps if:

- a program PlusCode programming number is not listed.
- program, such as a sporting event, may run over scheduled stop time.

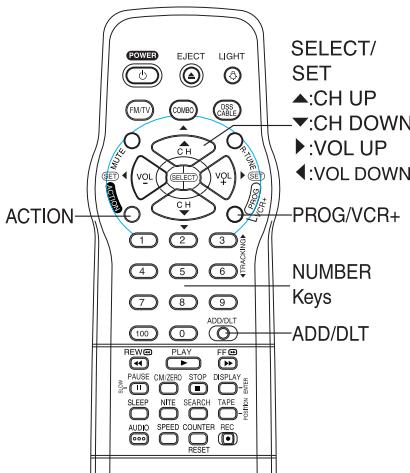
### See page 25 to:

- cancel a timer recording in progress.
- replace program contents.
- review or clear program contents once set.

### Notes

- You can obtain unlisted PlusCode programming numbers by calling 1-900-454-7587.  
Call costs approximately \$.95 per minute.
- Avoid overlapping program times.
- If you're using a cable box, make sure that it is tuned to the desired channel and the power is left on for timer recording.
- Timer programs memory capacity is 8. To add more programs, please first clear other programs. (See page 25.)
- Make each entry within 5 minutes or the unit will leave this mode.
- Once local channels have been programmed, they will stay in memory, even in the case of a power failure.

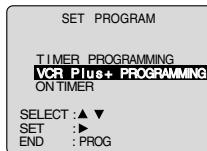
VCR Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation.  
The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.



## VCR Plus+ System Programming

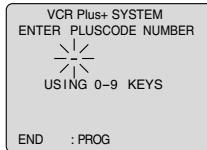
### 1 Press PROG/VCR+ to display SET PROGRAM screen.

2



- 1) Press **▲▼** to select VCR Plus+ PROGRAMMING.
- 2) Press **►** to display screen.

3

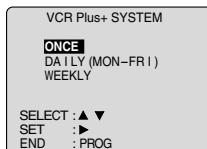


- 1) Press **number keys** to enter PlusCode programming number.
- 2) Press **PROG/VCR+** when finished.

### To Make Corrections

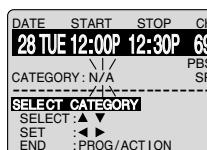
Press **◀** repeatedly to delete the PlusCode programming number.

4



- 1) Press **▲▼** to select and **►** to set Record Frequency.

5



- 1) Press **▲▼** to select and **►** to set Category and Record speed.

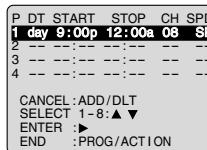
### Selections:

- Categories **►** N/A (not applicable), SPORTS, MOVIE, COMEDY, MUSIC, or DRAMA
- Speed **►** SP, LP, or SLP

### To Make Corrections

Press **◀▶** to move the cursor and **▲▼** to make the correction.

6



**Press PROG/VCR+ (or ACTION.) to end programming.**

7

**Press PROG/VCR+ twice (or ACTION) to exit this mode.**  
• PROG TIMER indicator lights on the unit.

# Cable Box Universal Remote Control Feature

## **Universal Remote Control is...**

The Remote Control may be set up to control some basic DSS or Cable box functions.

# The Universal Remote Control Setup

**1** Find your DSS box or Cable box Brand Code Number from one of the charts on the next page.

## 2 Setup remote.

 Hold down DSS CABLE and press number keys to enter code.

- For code 100 or greater, first press 100 key, then the remaining digits. E.g. for 102, press 100, then press 0, and then press 2.

## 3 Confirm code entry.

 Press **POWER\*** to turn selected unit ON or OFF

- See below for controllable functions in each mode.

## Notes

- Please repeat the Universal Remote Control Setup after replacing remote control batteries.
- The remote control will not operate all DSS receivers or Cable Boxes made by the manufacturers listed. If you get no results, your particular brand cannot be controlled.

# Using the Universal Remote Control

Once the remote control has been properly set up, you can select COMBO, DSS or CABLE mode depending on which functions you wish to control. (See below.)

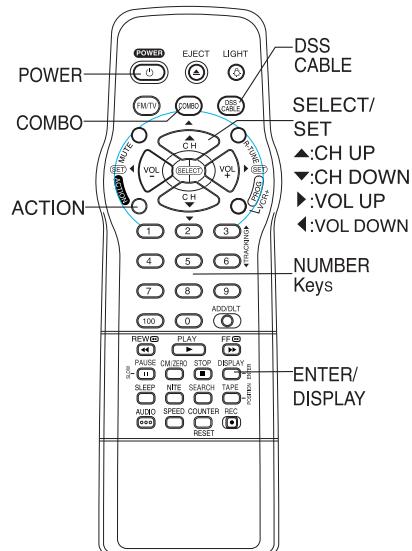
**Press COMBO or DSS CABLE** on the remote control to select the desired mode. (See below for buttons available in each mode.)

## **Set to COMBO:**

- All TV and VCR functions.

## **Set to DSS CABLE:**

- Basic VCR functions, e.g. PLAY, REC, etc.
- CABLE/DSS functions, e.g. POWER, ENTER, number keys (except 100 key), CH UP/DOWN



\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## DSS Brand Code Numbers

Toshiba .....	92	Magnavox/Uniden 2 .....	95	Sony .....	98, 105
Hitachi/Hughes .....	93	Panasonic .....	96		
Magnavox/Uniden 1 .....	94	RCA .....	97		

## Cable Box Brand Code Numbers

Archer .....	05, 06, 01, 44, 63, 91, 126	Matsushita .....	16, 17, 97, 109	Sheritech .....	27
Cabletenna .....	01, 44, 63, 91, 126	Movietime .....	32, 39, 42, 44, 126, 38, 40	Signal .....	26, 112
Cableview .....	63, 44, 42, 30, 52, 04, 124, 126	NEC .....	38, 40, 32	SL Marx ....	32, 40, 42, 06, 43, 44, 52, 63, 126
Century ...	51, 44, 59, 75, 126	NOVAVISION .....	08, 09, 61, 53, 87	Sprucer .....	16, 17, 97, 109
Citizen .....	63, 44, 42, 30, 52, 04, 124, 126	NSC .....	38, 40, 32	Standard Components .....	32, 39, 42, 44, 126
Curtis .....	08, 09, 61, 53, 87	Oak .....	46, 11, 129	Stargate ....	32, 40, 63, 44, 42, 30, 52, 04, 06, 124, 126
Diamond .	01, 44, 63, 91, 126	Oak Sigma .....	46, 11, 129	Sylvania .....	19
Drake .....	67	Panasonic .....	16, 17, 97, 109	Teknika .....	74
Eagle .....	13, 22, 58, 62, 20, 40, 26, 107	Philips .....	07, 13, 20, 23, 24, 50, 128, 129	Telecaption .....	77, 127
Eastern .....	28, 130	Pioneer .....	05, 06	Televiwer .....	32, 40, 42, 06
GC Brand .....	63, 44, 42, 30, 52, 04, 124, 126	Pulsar .....	63, 44, 42, 30, 52, 04, 124, 126	Texscan .....	18, 19
Gemini .....	04, 124	Quest .....	05, 06	Tocom ..	33, 34, 01, 42, 66, 91
General Electric .....	57, 01	Radio Shack ...	51, 44, 59, 75, 126	Toshiba .....	36
General Instruments ....	01, 02, 03, 04, 34, 55, 83, 106, 65, 67, 68, 115, 117, 118	RCA .....	16, 17, 97, 109	Uniden Satellite .....	65
Hamlin....	14, 15, 28, 41, 102, 103, 104, 108, 130	Realistic ...	51, 44, 59, 75, 126	Unika .....	01, 44, 63, 91, 126
Hitachi .....	31	Recoton ...	51, 44, 59, 75, 126	Universal ...	42, 43, 44, 52, 63, 126
Jasco .....	04, 124	Regal .....	14, 15, 28, 41, 102, 103, 104, 108, 130	Videoway .....	07, 23, 50, 129
Jerrold ....	01, 02, 03, 04, 34, 55, 83, 106, 65, 67, 68, 115, 117, 118	Regency .....	28, 130	Vid Tech .....	64
Macom .....	31	Rembrandt ....	01, 32, 39, 42, 44, 63, 126	Vidtek .....	64
Magnavox .....	26, 112	Salora .....	68	Viewstar ....	13, 22, 58, 62, 20, 40, 26, 107
		Samsung... 05, 32, 40, 42, 06		Zenith .....	07, 23, 50, 129
		Scientific Atlanta.... 08, 09, 61, 53, 87			

### Notes

- In DSS or CABLE mode, it may be necessary to press ENTER after pressing number keys for channel selection.
- In DSS or CABLE mode, POWER, CH Up/Down, number Keys, ACTION, PROG/VCR+, DISPLAY, SEARCH, R-TUNE, FM/TV, or ADD/DLT are not available.  
Press COMBO to use these functions.
- Depending on your DSS receiver or Cable box brand, some of the functions listed may not be remote controllable.
- Some DSS receiver or Cable box brands require you to turn on the power manually.
- Due to changes in infra-red commands used by manufacturers, some brands have several codes. If your unit does not respond to the first code, please try the next one.

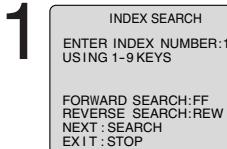
# Tape Operation

## Search System is ...

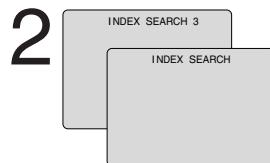
Each time a recording is made, an invisible index mark is placed on the tape.  
When timer recordings are made, program index and information are also included.  
These index marks can be used to access or scan recordings.

### Index Search

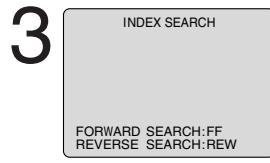
Go directly to the desired recording.



**Press SEARCH\***  
in Playback or  
Stop mode to  
display INDEX  
SEARCH screen.



**Press number keys**  
to select the  
recording number.  
• To calculate  
number, see below.

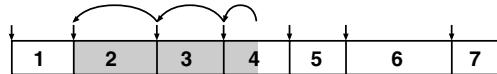


**Press FF or REW**  
to start search.  
• Play begins at search  
end. To search  
forward or back 1  
index, **press FF or  
REW** while screen  
left in displayed (10  
seconds).

### To calculate the Index Number

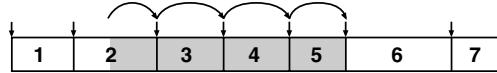
#### Example 1:

To go to rec. 2 from rec. 4, enter 3 and press REW.



#### Example 2:

To go to rec. 6 from rec. 2, enter 4 and press FF.



NOTE: ↑ indicates start points of each recording.

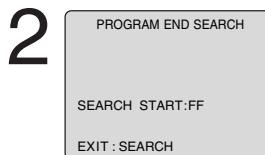
#### Notes

- Make each entry within 10 seconds, or the Index Search mode will be canceled.
- If Index Search is started very close to an index mark, that index mark may not be counted in the search.

### Program End Search

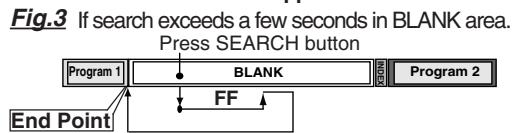
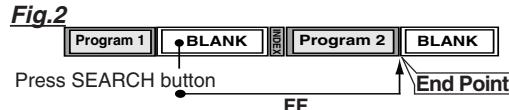
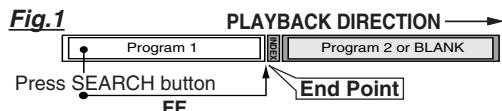
Locates end point of recording for continuity.

1 **Press SEARCH** twice in Playback or Stop mode to display PROGRAM END SEARCH screen .



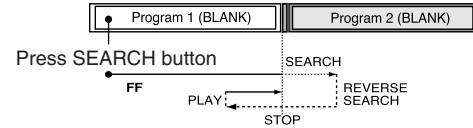
**Press FF**  
to start search.

Example of Program End Search operation.



#### Upon locating end point...

The unit searches slightly past end point,  
reverse searches, and plays the last few  
seconds of the program, then stops.

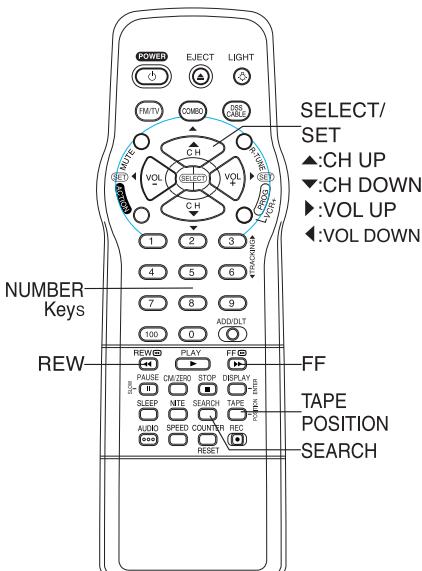
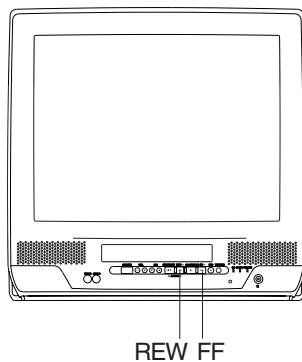


#### Notes

- If Program End Search is started very close to an index mark, that mark may be skipped over.
- To cancel, press PLAY or STOP.

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

<Model PV-C2061 unit shown>



## Auto Operation Functions

### ■ Auto Shut Off

No broadcast signal in TV, blank tape is Played for 5 minutes

→ Power turns off

- This feature is canceled if any button is pressed during above mode.

### ■ Auto Playback

Insert a tape in Power off mode

→ Power turns on

- Playback begins if tape has no record tab.

### ■ Auto Rewind

Tape reaches its end

→ Rewind, → Stop

### ■ Playback Auto Eject (Repeat Play is "OFF")

Tape with no record tab reaches its end

→ Rewind, → Stop, → Eject

## Tape Position Display

To find out present tape position and amount of tape remaining.

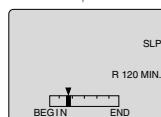
**Tape position cannot be detected for C-Cassettes, tapes under 30 minutes, and some other tapes.**

**1 Press TAPE POSITION**  
to detect current tape position.

DETECTING TAPE POSITION



• "DETECTING TAPE POSITION" is displayed only when a cassette is first inserted and it takes several seconds for correct tape position to appear.



• The present tape position indication and amount of tape remaining (according to tape speed) is displayed.

• Tape remaining time display may not be precise.

**2 Press TAPE POSITION (or wait 5 seconds)** to return to normal screen.

### Note

- This function cannot display exact amount of tape remaining for tapes over 120 minutes.

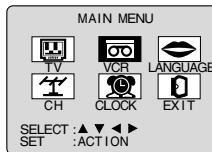
# Tape Operation (continued)

## Repeat Play

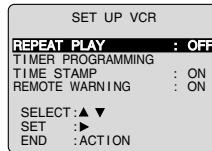
Set to see a recording over and over.

- 1 Press ACTION\* to display MAIN MENU.

2



3



4

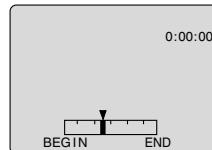
- 4 Press ACTION twice to end setup.

## Zero Search

To quickly return to a specific tape counter location.

- 1 Press DISPLAY during playback to display the Counter.

2



Press COUNTER RESET at the desired position to reset to "0:00:00."

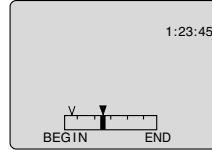
3

- 3 Continue playback, rewind, or fast forward.

4

- 4 Press STOP.

5



Press CM/ZERO in stop mode to start ZERO SEARCH.

- ▼ : Present position mark
- ▽ : Zero position mark
- Unit goes into FF or REW mode and stops at the last point the Counter was set to 0:00:00.

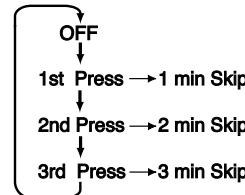
32

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

## Commercial Skip

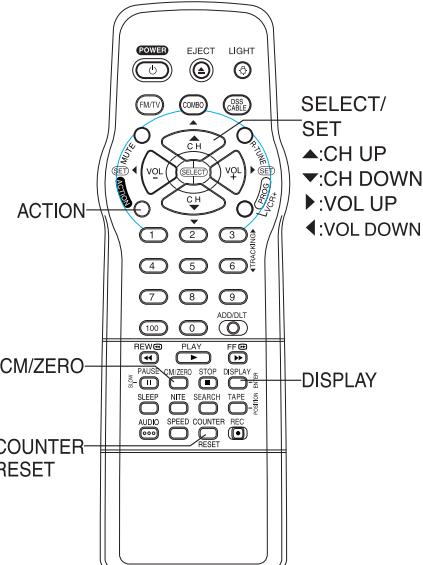
By pressing the CM/ZERO button in Playback mode you can skip over 1 to 3 minutes of recorded tape in just a few seconds.

- 1 Press CM/ZERO repeatedly to select skip time in Play mode.
  - No indication appears.



### Repeat Play Notes

- Playback repeats when tape end is reached or unrecorded portion over 30 seconds is detected.
- During playback, you may also press PLAY/REPEAT repeatedly on the unit to select REPEAT "ON" or "OFF."



### Zero Search Note

- If a blank portion exists on the tape, and depending on the position of the ▽ mark, the ▽ mark display may be out of position.

# Special VCR Features

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

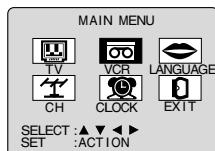
## Remote Warning ON/OFF

When Universal Remote Control (page 28) is used, and this feature is set to "ON," a warning appears whenever an invalid key is pressed in DSS or Cable mode.

### 1 Press ACTION

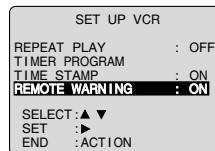
to display MAIN MENU.

2



- 1) Press **▲▼◀▶** to select "VCR."
- 2) Press **ACTION** to display SET UP VCR screen.

3



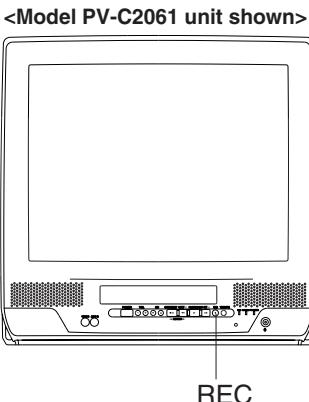
- 1) Press **▲▼** to select REMOTE WARNING.
- 2) Press **▶** to set "ON" or "OFF."

• "REMOTE WARNING : OFF"

→ Remote warning will not appear even if invalid key is pressed.

### 4 Press ACTION twice

to return to normal screen.



<Model PV-C2061 unit shown>

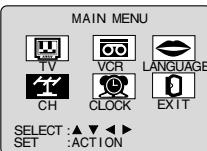
## Weak Signal Display ON/OFF

When "ON" is selected, the picture is displayed even when a broadcast signal is weak or non-existent.

### 1 Press ACTION

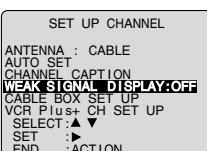
to display MAIN MENU.

2



- 1) Press **▲▼◀▶** to select "CH."
- 2) Press **ACTION** to display SET UP CHANNEL screen.

3



- 1) Press **▲▼** to select WEAK SIGNAL DISPLAY.
- 2) Press **▶** to set "ON" or "OFF."

### Notes

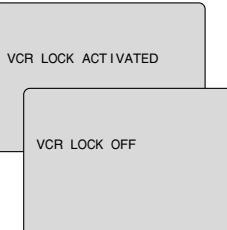
- "ON" = Picture is displayed regardless of signal condition, and may not always be clearly visible.
- "OFF" = Screen turns solid blue when signal is absent or weak.
- If unit is connected to equipment which has blue back feature, selecting "ON" will have no effect on the other equipment.

### 4 Press ACTION twice

to return to the normal screen.

## VCR Lock

All operations are prohibited except Timer recording and tape eject. Useful for families with small children.



In stop mode, hold down **REC** on the unit without a cassette inserted for 7 seconds to turn "ON." Please ignore "NO CASSETTE" warning.

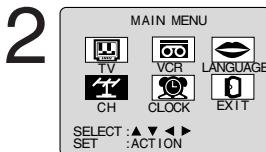
Repeat above with or without cassette to turn "OFF."

- VCR Lock is canceled automatically after about 24 hours if clock is set.

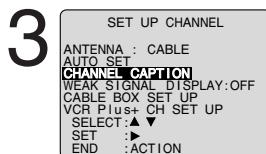
# Special VCR Features (continued)

## Preset Caption

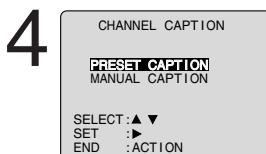
**1** Press ACTION\* to display MAIN MENU.



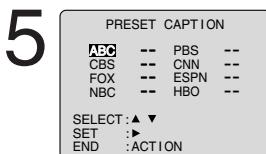
- 1) Press **▲▼◀▶** to select "CH."
- 2) Press ACTION to display SET UP CHANNEL screen.



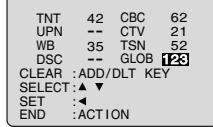
- 1) Press **▲▼** to select CHANNEL CAPTION.
- 2) Press **▶** to display screen.



- 1) Press **▲▼** to select PRESET CAPTION.
- 2) Press **▶** to display screen.
  - To create your own captions, go to "Manual Caption" on page 35.



- 1) Press **▲▼** to select a station.
- 2) Press **▶** to move cursor to the right.
- 3) Press **▲▼** to select channel number.
- 4) Press **◀** to set preset captions.
  - Repeat step 5 until the Caption List is complete.



### To Make Corrections

Press **▲▼**, then **▶** to select channel number.  
Press **▲▼** to change, or ADD/DLT to delete.

**6** Press ACTION four times to end setup.

### Channel Caption is ...

Station names, e.g. ABC, TNN, etc. are set so they will appear when a channel is selected. Choose 24 preset names (Preset Caption), or make up to 10 names of your own (Manual Caption).

### Check list before you begin.

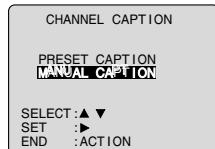
- You need a list of stations and the channel numbers you receive them on.

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Manual Caption

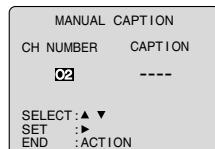
### 1 Do “Preset Caption” steps 1~3 (page 34).

2



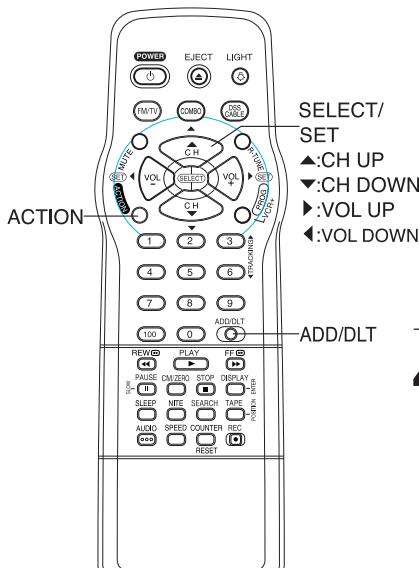
- 1) Press ▲▼ to select MANUAL CAPTION.
- 2) Press ▶ to display screen.

3

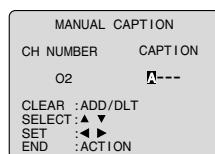


- 1) Press ▲▼ to select CH NUMBER.
- 2) Press ▶ to move cursor to the right.

- Channels already set and channels deleted from Channel Memory are not displayed.
- You can set a total of ten channel captions with up to four characters each.



4



- 1) Press ▲▼ to select and ▶ to enter your caption.

- Characters change in the following order.

→ A — B — C ..... Z — BLANK — — & →  
→ 9 ..... 2 — 1 — 0 — / — ! ←

- Press ◀ repeatedly to move the cursor to “CH NUMBER.” Repeat steps 3 and 4 as desired.

### To Make Corrections

Press ▲▼, then ▶ to select channel number.  
Press ▲▼ to change, or ADD/DLT to delete.

5

Press ACTION four times  
to end setup.

# Special VCR Features (continued)

## Time Stamp Feature

This unit writes program data (see example below) for about the first 10 seconds of every recording. The information is then displayed about 10 seconds after playback begins.



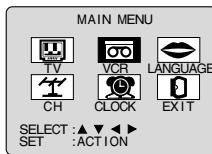
### Ready Check List

- The clock is set to correct time.
- The record tab is in place.

### 1 Press ACTION\*

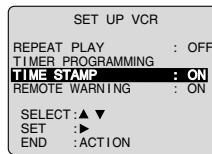
to display MAIN MENU.

2



- 1) Press ▲▼◀▶ to select "VCR."
- 2) Press ACTION to display SET UP VCR screen.

3



- 1) Press ▲▼ to select TIME STAMP.
- 2) Press ▶ to set "ON" or "OFF."

- When "OFF" is selected, the program data is written on the tape, but will not be displayed.

### 4 Press ACTION twice

to return to normal screen.

### <Time Stamp Example >

Normal/ One Touch Recording

12/18/2001 TUE  
12:00PM  
CH 08 ABC

Timer Recording

12/18/2001 TUE  
12:00PM - 1:00PM  
CH 08 ABC MOVIE

When Clock is not set...

--/-/-/-  
--::--  
CH 08 ABC

# V-Chip Control Feature

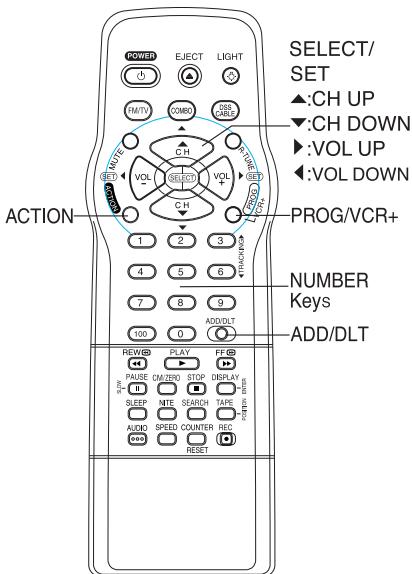
\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Process of V-Chip Control Feature

Enter Code → Setup → Blocking

## V-Chip Control Feature is...

This unit has a built-in V-Chip Control which allows you to block unwanted TV usage based on US MOVIES and US TV PROGRAMS Ratings.



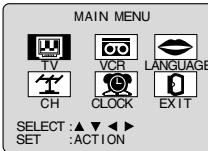
### Enter Secret Code

A 4-digit code must be entered to view a blocked program or change rating settings.

#### 1 Press ACTION

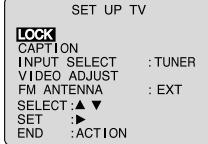
to display MAIN MENU.

#### 2



- 1) Press ▲▼◀▶ to select "TV."
- 2) Press ACTION to display SET UP TV screen.

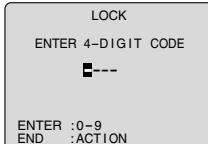
#### 3



<Model PV-C2061 screen shown.>

- 1) Press ▲▼ to select LOCK.
- 2) Press ▶ to display screen.

#### 4



- 1) Press number keys to enter your secret code.
- 2) Enter same code again for confirmation.

#### To Make Corrections

Press ◀ repeatedly to move the cursor.  
Press number keys to make the correction.

- Step 2) not necessary when changing rating or secret code.
- Take care that you are not observed entering the secret code.

#### 5



Press ▶ to display US Ratings menu (see page 38).

Or

Press ACTION three times to exit.

### Changing your secret code

- You will need your current code.
- Do steps 1 ~ 4. In step 5, press ADD/DLT to clear current code.
- Repeat steps 4 and 5 to enter new code.

### Notes

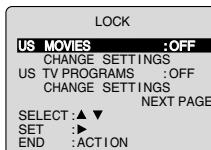
- DO NOT forget your secret code.
- Once ratings are set, restricted tapes or programs cannot be accessed unless the secret code is entered.

# V-Chip Control Feature (continued)

If LOCK menu is not displayed, do  
“Enter Secret Code” steps on page 37.

## Setup US MOVIES Ratings

1



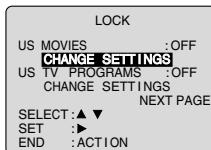
- 1) Press **▲▼** to select US MOVIES.
- 2) Press **▶** to set “ON” or “OFF.”

- “ON” → V-Chip Control is activated.
- “OFF” → V-Chip Control is deactivated.

### Note

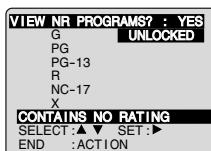
- “NEXT PAGE” displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.

2



- 1) Press **▲▼** to select CHANGE SETTINGS.
- 2) Press **▶** to display screen.

3

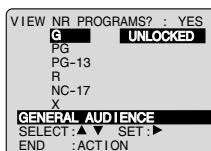


- 1) Press **▲▼** to select VIEW NR PROGRAMS?.
- 2) Press **▶** to set “YES” or “NO.”

### NR (Not Rated) PROGRAMS

Some movies, such as old movies or foreign movies usually have no ratings.

4



- 1) Press **▲▼** to select and **▶** to set ratings to be blocked.  
(See ratings chart next page.)

5

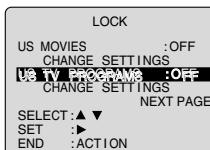
Press **ACTION** to redisplay LOCK menu and continue with US TV PROGRAMS Ratings Setup (this page). Or, press **ACTION** four times to exit.

## Process of V-Chip Control Feature

Enter Code **Setup** **Blocking**

## Setup US TV PROGRAMS Ratings

1



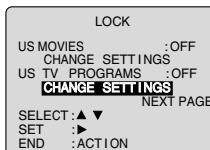
- 1) Press **▲▼** to select US TV PROGRAMS.
- 2) Press **▶** to set “ON” or “OFF.”

- “ON” → V-Chip Control is activated.
- “OFF” → V-Chip Control is deactivated.

### Note

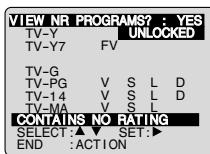
- “NEXT PAGE” displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.

2



- 1) Press **▲▼** to select CHANGE SETTINGS.
- 2) Press **▶** to display screen.

3

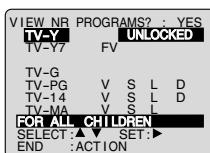


- 1) Press **▲▼** to select VIEW NR PROGRAMS?.
- 2) Press **▶** to set “YES” or “NO.”

### NR (Not Rated) PROGRAMS

Some TV shows, such as news, sports, weather, bulletins, emergency information usually have no ratings.

4



- 1) Press **▲▼** to select and **▶** to set ratings to be blocked.  
(See ratings charts next page.)

### Note

You may select from standard TV ratings (chart 1), or customize to a specific content rating (chart 2).

• Ratings highlighted in Green will be blocked. Ratings in white letters will not be blocked.

5 Press **ACTION** four times to exit this mode.

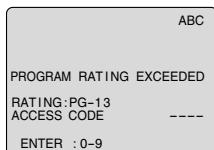
\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Process of V-Chip Control Feature

**Enter Code** → **Setup** → **Blocking**

### Blocking Message

<When V-Chip Control is activated>



- If a program or movie exceeds the ratings you have set, a message will appear on a black background and sound is muted.

### To View a Blocked Program / Movie

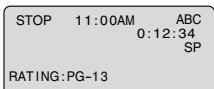
#### [Temporarily Deactivate V-Chip Control]

Enter your secret code (ACCESS CODE) in the Blocking Message screen.

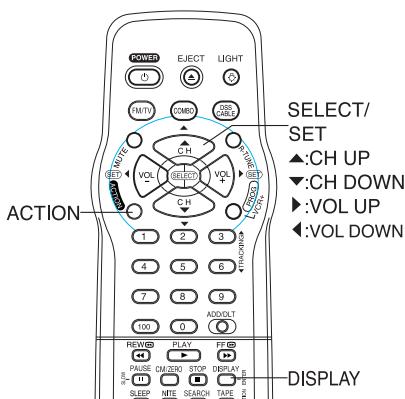
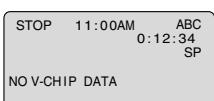
- V-Chip Control is reactivated when power is turned off or power failure occurs.

#### [Deactivate V-Chip Control]

Enter your secret code (steps 1-4 page 37). Then, set US MOVIES and/or US TV PROGRAMS to "OFF" using ▲▼ and ► keys. (Ratings set on page 38 are retained and will be in effect when V-Chip Control is activated again.)



- If DISPLAY is pressed, even when V-Chip control is deactivated, rating is displayed on-screen.
- If DISPLAY is pressed, when V-Chip has not been setup, "NO V-CHIP DATA" is displayed on-screen.



### US MOVIES RATINGS

G	<b>GENERAL AUDIENCE:</b> All ages admitted.
PG	<b>PARENTAL GUIDANCE:</b> Some material may not be suitable for children.
PG-13	<b>PARENTS CAUTIONED:</b> Some material may be inappropriate for children under 13.
R	<b>RESTRICTED:</b> Children under 17 must be accompanied by a parent or adult.
NC-17	<b>OVER AGE 17 ONLY:</b> No one 17 and under admitted.
X	<b>ADULTS ONLY:</b>

### US TV PROGRAMS RATINGS:

#### Chart 1

TV-Y	<b>FOR ALL CHILDREN:</b> Content specifically geared to young viewers ages 2-6.
TV-Y7	<b>FOR AGE 7 AND OLDER:</b> May contain mild physical or comedic violence which may frighten children under 7.
TV-G	<b>GENERAL AUDIENCE:</b> Contains little or no violence, strong language, or sexual dialogue or situations.
TV-PG	<b>PARENTAL GUIDANCE:</b> May contain infrequent coarse language, limited violence, some suggestive sexual dialogue and situations.
TV-14	<b>PARENTS CAUTIONED:</b> May contain sophisticated themes, sexual situations, strong language, and more intense violence.
TV-MA	<b>MATURE AUDIENCE:</b> May contain mature themes, profane language, graphic violence, and sexual situations.

### US TV PROGRAMS RATINGS:

#### Chart 2

FV	Fantasy Violence
V	Violence
S	Sexual Situations
L	Adult Language
D	Sexually Suggestive Dialogue

# Audio Features

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

<For Model PV-C2081 only>

## Select Audio Mode for Playback

Choose the type of sound track for playback.

1 See the "Playback a Tape" section on page 14 to playback the tape.

2

HIFI (L/R) ←  
HIFI (L)  
HIFI (R)  
NORMAL

- This screen appears when you press AUDIO during playback.

Press AUDIO repeatedly (each press within 5 seconds) to select desired mode.

- Select "HIFI (L/R)", "HIFI (L)" or "HIFI (R)" to listen to stereo recordings in stereo sound. Select "NORMAL" for monaural sound.

With the proper audio mode setting, your unit can:

- record and playback MTS stereo broadcast (main language) in stereo Hi-Fi. Stereo sound is recorded on the left and right audio tracks and on the video portion of a tape.
- record and playback a monaural broadcast (main language) or SAP (Secondary Audio Program, usually in a second language) on the Hi-Fi tracks for better quality monaural sound.
- playback non-Hi-Fi tapes in monaural.

## Select Audio Mode for Recording

Choose audio mode to match recording type.

1 Press AUDIO repeatedly to select the audio mode according to the type of broadcast to be recorded.

- The Audio mode selected stays in effect until it is changed.

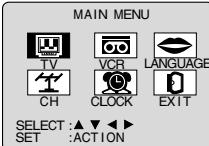
2 See the "Record On a Tape" section on page 14 to do a recording.

## Speaker ON/OFF System

Allows you to turn off the speaker of the unit when it is connected to external audio equipment.

1 Press ACTION\* to display MAIN MENU.

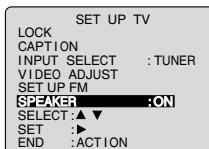
2



1) Press ▲▼◀▶ to select "TV."

2) Press ACTION to display SET UP TV screen.

3



1) Press ▲▼ to select SPEAKER.

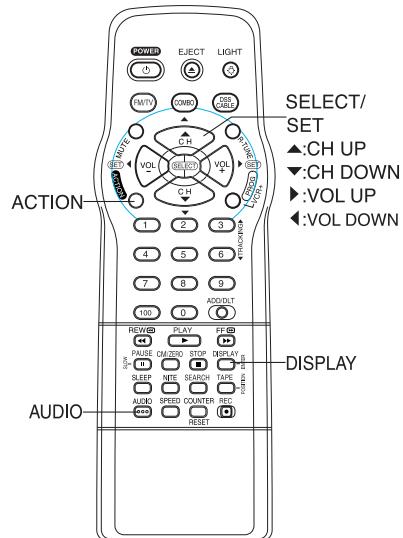
2) Press ▶ to set "ON" or "OFF."

- "OFF" → MUTE and VOL + - buttons do not function.

4 Press ACTION twice to end setup.

40

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com



### Notes

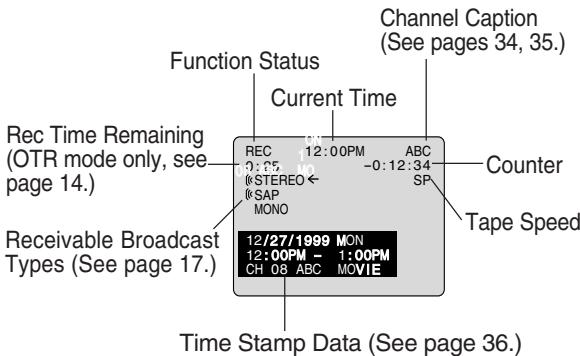
- Only tapes recorded in Hi-Fi stereo will playback with true stereo sound. Standard stereo tapes will playback with monaural sound.
- To listen to Hi-Fi stereo playback, the unit AUDIO (L/R) jacks must be connected to a stereo amp and speakers.
- There may be a difference in audio level between Hi-Fi and normal audio playback.

# On-Screen Display (OSD)

## VCR Status & Clock Display

Press DISPLAY

to display or remove the overlay.

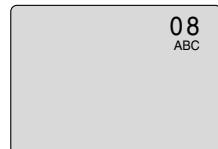


## Blue Screen Display

Whenever a blank section of a tape comes up in Play mode, or when the selected channel has no broadcast signal with the Weak Signal Display set to "OFF" (see page 33), the screen will turn solid blue.

## Channel & Function Display

When a function button is pressed (PLAY, FF, etc.) or you change channels, the unit mode or channel number will be displayed. (Some station names may also appear if Channel Caption is set. See pages 34, 35.)



## Warning and Instruction Displays

These displays will alert you to a missed operation or provide further instructions.

OSD	Caution	Page
NO CH FOUND PLEASE CHECK ANTENNA CABLE CONNECTION THEN PUSH CH UP KEY AGAIN	• If no active channels are found for CHANNEL MEMORY...	8 - 11
PLEASE SET CLOCK BEFORE PROGRAMMING	• If you attempt to set or review a Timer Recording, VCR Plus+ System Programming or set the On-Timer and the Clock is not set...	8 - 13
CHECK CASSETTE RECORD TAB	• If you press REC, and a cassette is inserted with no record tab...	4, 14
TO CANCEL TIMER REC HOLD DOWN STOP KEY FOR APPROX 3 SEC	• If you press STOP during a Timer Recording...	25
NO CASSETTE PLEASE INSERT A CASSETTE	• If you press PLAY, FF, REW, or REC without a cassette inserted...	14
REMOTE CONTROL IS SET TO DSS/CABLE MODE USE COMBO : COMBO KEY	• If you press POWER, ACTION, or PROG on the remote while in DSS or CABLE mode...	28, 29
VIDEO HEADS MAY NEED CLEANING PLEASE INSERT HEAD CLEANING CASSETTE OR REFER TO MANUAL END: PLAY KEY	• If head cleaning becomes necessary while playing back a tape...	42
VCR LOCK ACTIVATED	• If you press a function button other than STOP/EJECT or POWER while the unit is in VCR Lock mode...	33

# Unit Information

\*Important: if a remote control button does not work when pressed, press the COMBO button on the remote and try the button again.

## Head Cleaning

Playing older or damaged tapes may eventually cause video heads to become clogged.

### Head Clog Sensor

During playback this screen appears if clogging is detected. To remove screen, press PLAY on the remote or unit.

- Use "dry" type head cleaning cassette only. (Part No. NV-TCL30PT is recommended.)
- Follow cleaning tape directions carefully. Excessive use of head cleaning tape can shorten the video head life.
- If head clog symptoms persist, contact your nearest Factory Service Center or authorized Service Center. (See Page 44.)

VIDEO HEADS MAY  
NEED CLEANING  
PLEASE INSERT HEAD  
CLEANING CASSETTE  
OR REFER TO MANUAL  
  
END-PLAY KEY

## Specifications

### Display

Picture Tube: 20 inch measured diagonal 90° deflection Picture Tube

### VCR

Video Recording System: 4 rotary heads helical scanning system  
Audio Track: 1 track (NORMAL)  
2 channel (Hi-Fi Audio Sound) (PV-C2081)

### Tuner

Broadcast Channels: VHF 2 ~ 13, UHF 14 ~ 69  
CABLE Channels: Midband A through I (14 ~ 22)  
Superband J through W (23 ~ 36)  
Hyperband AA ~ EEE (37 ~ 64)  
Lowband A-5 ~ A-1 (95 ~ 99)  
Special CABLE channel 5A(01)  
Ultraband 65 ~ 94, 100 ~ 125

### FM Radio

Band range: 87.5 ~ 108.1 MHz

### FM Transmitter

Band range: 93 ~ 97, 99 ~ 103 MHz (PV-C2081)

### General

Power Source: 120 V AC, 60 Hz  
Power Consumption: Approx. 110 watts (Power on)  
Approx. 4.0 watts (Power off)  
Television System: EIA Standard NTSC color  
Speaker: 2 pieces  
Operating Temperature: 5 °C ~ 40 °C (41 °F ~ 104 °F)  
Operating Humidity: 10 % ~ 75 %  
Weight: 23 Kg (50.6 lbs.)  
Dimensions: 515 (W) X 505 (H) X 474 (D) mm  
20-5/16" (W) X 19-7/8" (H)  
X 18-11/16" (D)

Note: Designs and specifications are subject to change without notice.

## Features for a Quality Picture

### Digital Auto Tracking

Continuously analyzes the signal and adjusts for optimum picture quality.

### Manual Tracking Control (to reduce picture noise)

Use during Playback and Slow Motion mode to reduce picture noise. Press the 3 or 6 number key on the remote control or CH ▲▼\* on the unit until the picture clears up. To return to Auto Tracking, press POWER off, then on again a few seconds later.

### V-Lock Control

In Still mode, the 3 or 6 number key on the remote control or CH ▲▼ on the unit operate as a V-Lock control to reduce jitter.

### PanaBlack™ Picture Tube

This unit uses a PanaBlack™ picture tube for better color reproduction and picture contrast.

## Record/Playback Time

Only use tapes with the **VHS** mark in this unit.

Tape Speed Setting	Type of Video Cassette		
	T60	T120	T160
SP (Standard Play)	1 Hour	2 Hours	2 Hours 40 Minutes
LP (Long Play)	2 Hours	4 Hours	5 Hours 20 Minutes
SLP (Super Long Play)	3 Hours	6 Hours	8 Hours

# Before Requesting Service

Check the following points once again if you are having trouble with your unit.

Power	Correction
No power...	<ul style="list-style-type: none"><li>• Completely insert Power Plug into an AC outlet.</li><li>• Set POWER button to ON.</li></ul>
Monitor	Correction
No picture or sound...	<ul style="list-style-type: none"><li>• Make sure your antenna system (TV or CABLE), is correctly set. (P. 8-11)</li><li>• Completely insert Power Plug into an AC outlet.</li><li>• Set POWER button to ON.</li><li>• Adjust BRIGHTNESS, SHARPNESS, and PICTURE controls in the SET UP TV menu. (P. 21)</li><li>• Adjust VOLUME control. (P. 16)</li><li>• Adjust SHARPNESS and PICTURE controls in the SET UP TV menu. (P. 21)</li><li>• Adjust TINT and COLOR controls in the SET UP TV menu. (P. 21)</li><li>• Install a directional antenna.</li><li>• Make sure the selected channel is in unit's memory. (P. 12, 13)</li><li>• Only the channel being recorded can be viewed on this unit.</li></ul>
VCR	Correction
TV program cannot be recorded...	<ul style="list-style-type: none"><li>• Make sure your antenna system (TV or CABLE), is correctly set. (P. 8-11)</li><li>• Make sure cassette record tab is intact. (P.4)</li><li>• Check that clock is set to current time and date.</li><li>• Make sure DSS/CABLE box (if used) is left on and tuned to channel to be recorded.</li><li>• Set recording Start/Stop times correctly. (P. 24-25)</li><li>• Timer recording may not be performed or continued if a power interruption of more than 1 minute occurs before or during a Timer recording even after power is restored.</li><li>• Adjust TRACKING control in either direction. (P. 42)</li><li>• Try Head Cleaning. (P. 42)</li><li>• Make sure VCR LOCK is set to off. (P. 33)</li><li>• Make sure unit is not in a Timer Record operation.</li></ul>
Remote Control	Correction
Unit cannot be controlled...	<ul style="list-style-type: none"><li>• Aim remote at remote sensor on unit (P. 7) so that signal is unobstructed.</li><li>• Inspect the remote batteries. (P. 4)</li><li>• Make sure VCR LOCK is set to off. (P. 33)</li><li>• Exposing unit remote sensor to direct fluorescent or outdoor light may cause signal interference.</li><li>• Press COMBO button for COMBO mode. (P. 28)</li><li>• Check remote batteries.</li></ul>
Miscellaneous	Correction
Video cassette cannot be inserted...	<ul style="list-style-type: none"><li>• Insert the cassette window side up; record tab facing you.</li></ul>
Video cassette cannot be removed...	<ul style="list-style-type: none"><li>• Completely insert Power Plug into an AC outlet.</li></ul>
Tape cannot be ejected or inserted...	<ul style="list-style-type: none"><li>• Try ejecting or inserting the tape again after turning POWER off, then back on.</li><li>• Make sure cassette record tab is intact. (P. 4)</li></ul>
Video cassette ejects when a recording is started, or the power is turned off for timer recording...	<ul style="list-style-type: none"><li>• To enable Quick Play mechanism, the VCR cylinder will rotate for about 3 minutes. This reduces response time from Stop to Play mode and from Play to Rewind Search mode.</li></ul>
In Stop mode, the VCR motor (CYLINDER) continues to rotate...	<ul style="list-style-type: none"><li>• Make sure VCR LOCK is set to off. (P. 33)</li></ul>
VCR cannot be controlled...	

If you cannot resolve the problem, please call the Customer Satisfaction Center for product assistance at 201-348-9090.

To locate an authorized servicenter call toll free 1-800-211-PANA(7262)  
or send e-mail to : consumerproducts@panasonic.com.

# Service Center List

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:  
1-800-211-PANA (7262), Monday-Friday 9 am-9 pm Saturday-Sunday 9 am-7 pm, EST.  
or send e-mail to : consumerproducts@panasonic.com

Web Site: <http://www.panasonic.com>

You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

## Accessory Purchases:

1-800-332-5368 (Customer Orders Only)

Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032

(6 am to 5 pm Monday - Friday; 6 am to 10:30 am Saturday; PST)

(Visa, MasterCard, Discover Card, American Express, Check)

## Factory Servicenters Locations

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### WASHINGTON

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WA 98032

### HAWAII

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Aiea, Hawaii 96701  
Phone  
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(808) 486-4369

## Service in Puerto Rico

Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/ Factory Servicenter:  
Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985  
Phone (787)750-4300 Fax (787)768-2910

As of January 2000

# Limited Warranty

Panasonic Consumer Electronics Company,  
Division of Matsushita Electric Corporation  
of America, One Panasonic Way  
Secaucus, New Jersey 07094

Panasonic Sales Company,  
Division of Matsushita Electric of Puerto Rico, Inc.  
AVE. 65 de Infantería, Km. 9.5 San Gabriel  
Industrial Park Carolina, Puerto Rico 00985

## PANASONIC Video Products Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair this product with new or refurbished parts, free of charge, in the USA or Puerto Rico, in the event of a defect in materials or workmanship as follows (all time periods commence from the date of the original purchase):

PRODUCT	PARTS	LABOR	SERVICE	CONTACT NUMBER
CAMCORDER	ONE (1) YEAR, EXCEPT CCD IMAGE SENSOR CCD IMAGE SENSOR - SIX (6) MONTHS	NINETY (90) DAYS NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
VCR	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
A/V MIXER	ONE (1) YEAR	NINETY (90) DAYS	Carry-In or Mail In	1-800-211-PANA(7262)
MONITOR- VCR Combination	ONE (1) YEAR, EXCEPT CRT CRT - TWO (2) YEARS	NINETY (90) DAYS CRT - NINETY (90) DAYS	Carry-In: 21" CRT and Smaller  In-home or carry-in: 22" CRT and Larger	1-800-211-PANA(7262)

Batteries (if included) - New rechargeable batteries in exchange for defective rechargeable batteries for ten (10) days. Non-rechargeable batteries are not warranted.

Tape (if included) - New video cassette tape in exchange for a defective video cassette tape for five (5) days. In-home, carry-in or mail-in service, as applicable, in the USA can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Service Directory. Or call toll free contact number listed above, to locate an authorized PASC Servicenter. Carry-in or mail-in service in Puerto Rico can be obtained during the warranty period by calling the Panasonic Sales Company telephone number listed in the Servicenter Directory.

This warranty is extended only to the original purchaser. A purchase receipt or other proof of the date of the original purchase is required before warranty service is rendered.

This warranty only covers failures due to defects in materials and workmanship which occur during normal use and does not cover normal maintenance, including, but not limited to, video and audio head cleaning. The warranty does not cover damage which occurs in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, set-up adjustments, improper antenna, inadequate signal pickup, maladjustment of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, commercial use such as hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a PASC Factory Servicenter or a PASC authorized Servicenter, or damage that is attributable to acts of God.

### LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

THE WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGE TO RECORDING MEDIA) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THE WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Consumer Affairs Department at the Panasonic Consumer Electronics Company address above.

SERVICE CALLS WHICH DO NOT INVOLVE DEFECTIVE MATERIALS OR WORKMANSHIP AS DETERMINED BY THE WARRANTOR, IN ITS SOLE DISCRETION, ARE NOT COVERED. COSTS OF SUCH SERVICE CALLS ARE THE RESPONSIBILITY OF THE PURCHASER.

warvid 8/8/2000

# Spanish Quick Use Guide/Guía para rápida consulta

## Como realizar la Configuración Inicial

### 1 Presione POWER en el control remoto o en la unidad.



- Si ajusta el idioma incorrecto, realice los pasos de la página 9 "Reajuste de todas las Funciones de Memoria de la unidad".
- Active la caja de cables y ajústela al canal PBS en su huso horario.  
Si usted utiliza receptor DSS, este debe estar apagado.

### 2 FIJACION AUTO. (CA/RELOJ)

CONECTE EL CABLE DE LA ANTENA Y SI ESTA USANDO UNA CAJA DE TV POR CABLE SINTONICE AL CANAL PBS DE SU LOCAL LUEGO...  
POR FAVOR OPRIMIR CH UP

Presione CH ▲ para seleccionar Inglés (English).

Presione CH ▼ para seleccionar Español.

Presione VOL + para seleccionar Francés (Français). Aparecerá la pantalla CHANNEL / CLOCK AUTO SET.

### 3 6/7/2000 MIE 12:00PM HORA VERANIEGA: ACT. CANAL FIJADO : CA 10 FIJACION AUTOMATICA COMPLETO TERMINAR : OPRIMIR CH UP

FIJACION AUTOMATICA DEL  
RELOJ ES INCOMPLETO  
OPRIMIR ACTION  
PARA FIJAR EL RELOJ

Presione la tecla CH ▲ para iniciar el funcionamiento de CHANNEL / CLOCK AUTO SET. El ajuste del CHANNEL / CLOCK se lleva a cabo automáticamente, si la configuración se ha terminado, se visualiza la pantalla siguiente.

Si aparece la pantalla "FIJACION AUTOMATICA DEL RELOJ INCOMPLETO", ajuste el reloj utilizando los procedimientos de "AJUSTE MANUAL DEL RELOJ" mostrados en la página 9.

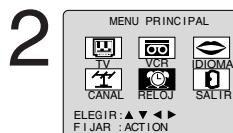
## Ajuste Manual del Reloj

Si el ajuste automático del reloj no se ha completado, ajuste el reloj manualmente de la siguiente manera:

- Presione la tecla ACTION en el control remoto para visualizar la pantalla del menú RELOJ.
- Presione ▲▼ para seleccionar el mes y ► para ajustar. De la misma forma, seleccione y ajuste la fecha, año, hora y DST (Hora de Verano).
- Presione dos veces la tecla ACTION para poner el RELOJ en marcha y salir.

## Ajustar de nuevo el reloj

### 1 Presione ACTION para exhiba el menú.



Presione ▲▼► para seleccionar "RELOJ".  
Presione ACTION.



Presione ▲▼ para seleccionar "MANUAL" y luego presione ►.



Presione ▲▼ y ► para seleccionar y ajustar la hora y la fecha.

### 5 Presione ACTION dos veces para que el reloj comience a funcionar y salir desde este modo.

## Operaciones básicas para la reproducción

1

### Inserte un casete.

- El videogramador combinado se enciende automáticamente.

2

### Presione PLAY.

- La reproducción comienza automáticamente si el casete no tiene la lengüeta para prevención de grabación.
- Para encontrar una escena en particular Búsqueda hacia adelante → Presione FF Búsqueda hacia atrás → Presione REW
- Para ver una imagen fija (congelada) → Presione PAUSE/SLOW
- Para ver en cámara lenta → Mantenga pulsado el botón PAUSE/SLOW en el modo de imagen fija
- Para ver imágenes cuadro a cuadro → Presione PAUSE/SLOW en el modo de imagen fija
- Para parar → Presione STOP
- Para rebobinar la cinta → Presione REW
- Para hacer avanzar la cinta rápidamente → Presione FF
- Para expulsar la cinta → Presione EJECT en el control remoto o STOP/EJECT en el videogramador combinado

## Operaciones básicas para la grabación

1

### Inserte un casete con la lengüeta para prevención de grabado.

- El videogramador combinado se enciende automáticamente.

2

### Seleccione el canal.

Presione CH ▲▼ o las teclas numéricas correspondiente.

3

### Seleccione la velocidad de grabación.

Presione SPEED.

SP = reproducción normal

LP = reproducción larga

SLP = reproducción super larga

- La velocidad seleccionada debe aparecer en la pantalla.

4

### Comience la grabación.

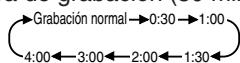
Presione REC.

- Para editar partes no deseadas de una grabación, presione PAUSE/SLOW para hacer una pausa durante la grabación.
- No podrá ver otro canal durante la grabación.
- Para parar → Presione STOP.

### ■ El videogramador combinado deja de grabar a una hora prefijada.

(Grabación de un toque)

Presione REC repetidamente para ajustar la hora de grabación (30 min - 4 horas.)



## Grabación con temporizador

1

### Exhiba FIJAR PROGRAMACION.

Presione PROG/VCR+.

2

### Exhiba TEMPORIZADOR.

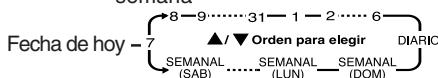
- 1) Presione ▲▼ para seleccionar.
- 2) Presione ► para exhibir.

• Si ya existe un programa en la memoria, presione ▲▼ y ► para seleccionar un número de programa sin usar.

3

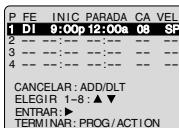


- 1 - 31 = Grabación única
- DIARIO = a la misma hora de lunes a viernes
- SEMANAL = a la misma hora una vez a la semana



Repita el paso 3 para ajustar:  
hora de comienzo, hora de parada, canal (o LINEA para una fuente exterior), categoría [N/O (no aplicable), DEPORTE, CINE, COMEDIA, MUSICA, DRAMA], velocidad (SP, LP, SLP)

4



### Terme el programa.

Presione PROG/VCR+ (o ACTION.)

### Para introducir más programas.

presione ▲▼ y ► para seleccionar y ajustar el número de programa en blanco, y luego repita los pasos 3 y 4.

5

### Salga de este modo.

Presione PROG/VCR+ dos veces (o ACTION.)

- Si está usando un decodificador de TV cable, asegúrese que se encuentra en el canal deseado y que la alimentación queda conectada para grabar con temporizador.

- El indicador PROG TIMER se enciende en el videogramador combinado.

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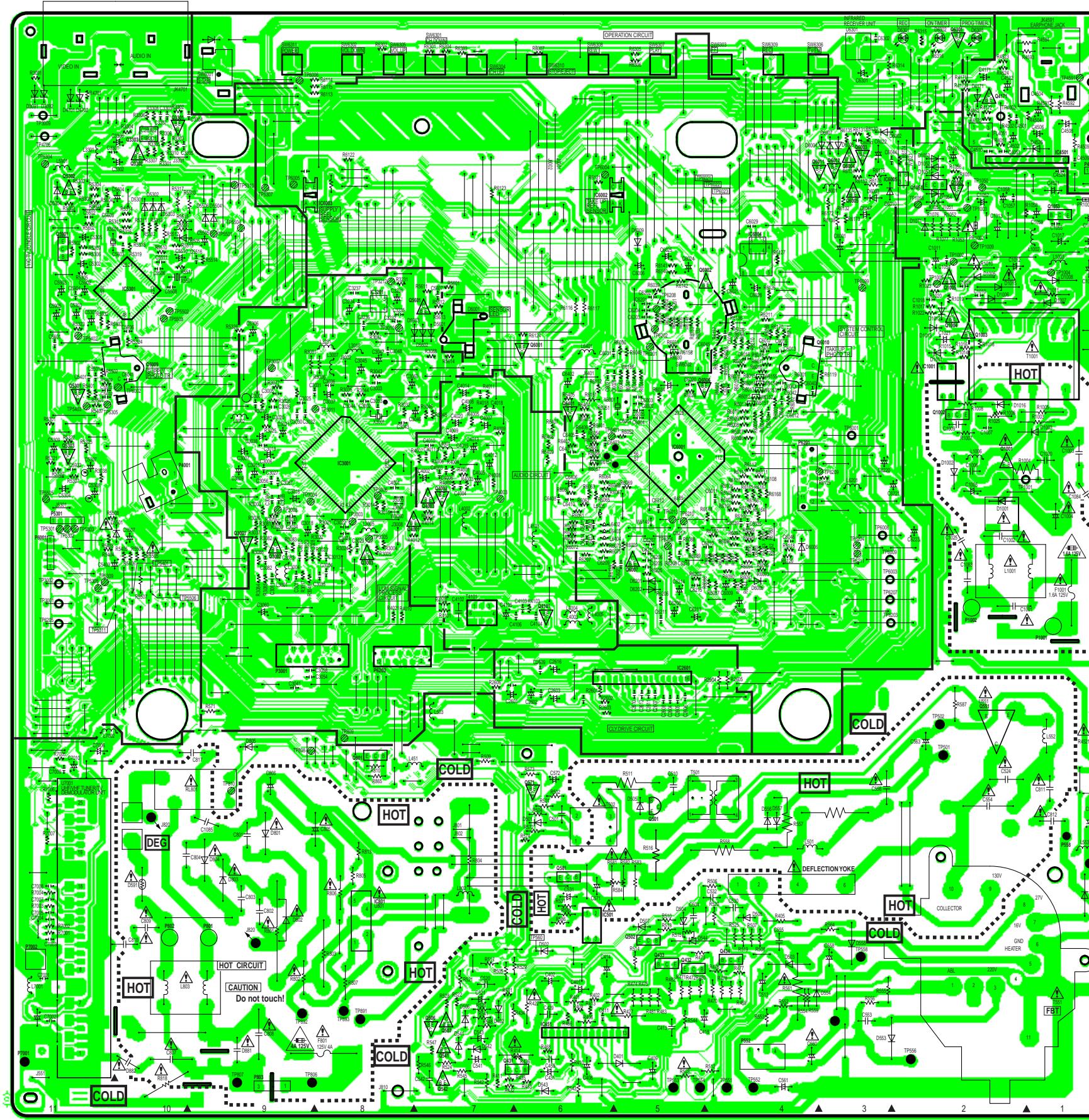
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San Gabriel Industrial Park, Carolina, Puerto Rico 00985



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S1200-0

# TV/VCR MAIN C.B.A. VEPS3098C (A, D, E) / VEPS3098B (B, C) / VEPS3098A (F, G)



## NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,  
REFER TO BEGINNING OF SCHEMATIC SECTION.

**IMPORTANT SAFETY NOTICE:**  
COMPONENTS IDENTIFIED BY THE SIGN HAVE  
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.  
WHEN REPLACING ANY OF THESE COMPONENTS,  
USE ONLY THE SPECIFIED PARTS.

**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.**  
**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N'UTILISER QUE DES FUSIBLE DE MÊME  
TYPE 4A 125V**

**CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.**  
**ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N'UTILISER QUE DES FUSIBLE DE MÊME  
TYPE 1.6A 125V**

## NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.  
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,  
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

## NOTE:

CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART  
OF MODELS & MARKS

MODEL	MARK
PVQ-1311	A
PV-C1321	B
PV-C1331W	C
VV-1301	D
VV-1311W	E
PV-C1341	F
PV-C1351W	G
PV-C2011	H
PV-C2021	I
PV-C2031W	J
VV-2001	K
PV-C2061	L